1993 -1997 Five-Year Plan

Program Summary

Program: DOMESTIC PRODUCT DEVELOPMENT - OPERATIONS DRIVEN

Category: PRODUCT DEVELOPMENT **Included in 1992-1996 Plan:** Yes

Start Date: ONGOING **Completion Date:**

Program Description:

The objective of these programs is to pursue continuous cost improvement/efficiencies in products and processes while maintaining quality and consumer acceptability.

Importance to PM-USA:

These programs address the product and process changes necessary to increase productivity, improve quality, decrease costs and address regulatory and environmental issues while protecting the subjective integrity of our products.

Program Benefits:

Maintains the quality and acceptability of our products.

Program Leadership:

Functional Area: R&D **Department:** Domestic Prod. Dev. **Program Leader:** Willis, Yatrakis Bell, Kroustalis

Support Required From	1993 Man-Years	Leadership Dept. (93)
Leaf Blending	TBD	
Technical Services	TBD	
Engineering	TBD	
Processing & Manufacturing Plants	TBD	
Purchasing	TBD	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones

	1993 1 2 3 4	1994 1 2 3 4	1995 1 2 3 4	1996 1 2 3 4	1997 1 2 3 4
Marlboro					
Implement Reduced Humectant Sheet					
Implement Phase I Grain					
Increase Expanded Tobacco to 14%					
Increase Expanded Tobacco to 15%					
Investigate Inclusion of Offshore Tobacco					
Investigate Pool Tobacco Purchases					
Investigate Alternate Humectants in Sheet Products					
Investigate Replacement for Licorice					
Develop Marlboro RI					
Further define/validate standard Marlboro					
Develop reduced alcohol aftercuts					

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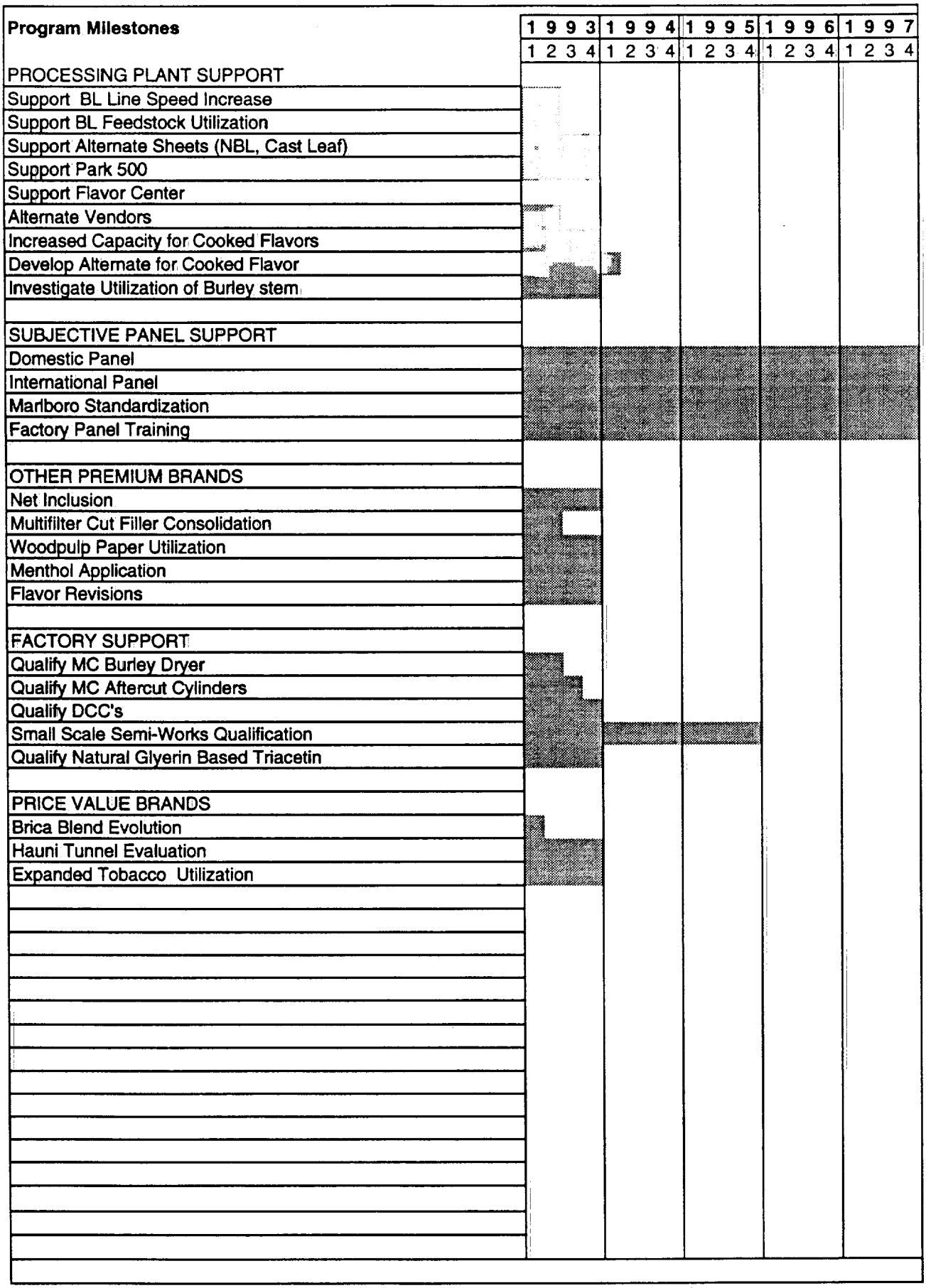

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: DOMESTIC PROD. DEV. - OPERATIONS DRIVEN **Program No.:**

Category: PRODUCT DEVELOPMENT **Date Prepared:** 3/15/93

Start Date: ONGOING **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
MARLBORO				
Implement Reduced Humectant Sheet	S. Ruziak	.15		
Implement Phase I Grain	S. Ruziak	.05		
Increase Expanded to 14%	S. Ruziak	.65		
Increase Expanded Tobacco to 15%	S. Ruziak	.05		
Investigate Inclusion of Offshore Tobacco	S. Ruziak	.15		
Investigate Pool Tobacco Purchases	S. Ruziak	.05		
Investigate Alternate Humectants	S. Ruziak	.40		
Investigate Replacement for Licorice	D. Spruill	.40		
Develop Marlboro RI	K. Deane	.15		
Further Define/Validate Standard Marlboro	A. Smith	.40		
Develop Reduced Alcohol Aftercuts	S. Ruziak	.40		
PROCESSING PLANT SUPPORT				
Support BL Line Speed Increase	B. Hoskin	.65		
Support BL Feedstock Utilization	B. Hoskin	.35		
Support Alternate Sheets (NBL & Cast Leaf)	Hoskin/J. Pflueger	.80		
Support Flavor Center				
Alternate Vendors	B. Hoskin	.15		
Increased Cooked Flavor Capacity	B. Hoskin	.40		
Develop Alternate for Cooked Flavor	J. Pflueger	.25		
Investigate Utilization of Burley Stems	B. Hoskin	.25		
SUBJECTIVE PANEL SUPPORT				
Domestic Panel	K. Deane	2.44		
International Panel	K. Deane	.85		
Marlboro Standardization	K. Deane	.85		
Factory Panel Training	K. Deane	.20		
OTHER PREMIUM BRANDS				
NET Inclusion	B. Taylor	.8		
Multifilter Cut Filler Consolidation	B. Taylor	0.05		
Woodpulp Paper Utilization	H. Maxwell	0.30		
Menthol Application	H. Maxwell	0.30		
Flavor Revisions	Cravotta/Skalak	0.30		
Support - RL - Feedstock Utilization	J. Pflueger	.25		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: DOMESTIC PROD. DEV. - OPERATIONS DRIVEN **Program No.:**

Category: PRODUCT DEVELOPMENT **Date Prepared:** 3/15/93

Start Date: ONGOING **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
FACTORY SUPPORT				
Qualify MC Burley Dryer	Spruill/Sherron	0.10		
Qualify MC Aftercut Cylinders	Spruill/Sherron	0.40		
Qualify DCC's	Spruill/Sherron	0.20		
Small Scale Semi-Works Qualification	Skalak	0.30		
Qualify Natural Glycerin Based Triacetin	Lam	0.15		
PRICE VALUE BRANDS				
Brica Blend Evolution	Bell	0.25		
Hauni Tunnel Evaluation	Bell	0.10		
Expanded Tobacco Utilization	Spruill/Swain	0.30		

Type of Support	Support Division	Mgr.
Special Analysis	ARD	TBD
Hardware/Software Design/Implementation	CAD	0.80
Analysis of Prototypes	CTSD	3.60
POL Testing	PED	3.20
Production of Prototypes	Semi Works	7.37
Cigarette Construction/Specifications	CTD	4.50

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: R & D PRODUCT TECHNOLOGIES (PACKAGING TECHNOLOGY)

Category: PRODUCT DEVELOPMENT **Included in 1992-1996 Plan:** NO

Start Date: ON-GOING **Completion Date:**

Program Description: The Packaging Technology Program includes several packaging-related projects which include: alternate film evaluation, qualification of waterborne and offset inks and new packaging materials which address quality and production concerns.

Importance to PM-USA: Packaging Materials must comply with current and future regulatory requirements dealing with disposal and recyclability. Waterborne inks and coatings will accomodate the supply chain programs. Offset printed materials offer cost effective means for promoting products.

Program Benefits: Program accommodates supply chain and regulatory compliance issues and provides cost effective promotional programs.

Program Leadership:

Functional Area: R & D **Department:** Prod. Dev. **Program Leader:** Cox/Kroustalis

Support Required From	1993 Man-Years	Leadership Dept. (93)
Quality Engineering	TBD	12.15
Purchasing Technical Services	TBD	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Alternate Film Testing																				
Qualification of Waterborne Inks																				
Qualification of Offset Inks																				
New Packaging Materials																				
Packaging Support and Development																				

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Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: R & D PRODUCT TECHNOLOGIES **Program No.:** _____

Category: PACKAGING TECHNOLOGY **Date Prepared:** Sept. 18, 1992

Start Date: ON-GOING **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Alternate Film Testing	B. Mait	2.35		
Qualification of Waterborne Inks	B. Mait	1.05		
Qualification of Offset Inks	B. Mait	2.10		
New Packaging Materials	B. Mait	1.05		
Packaging Support and Development	J. Hearn	0.05		

Type of Support	Support Division	Resource Allocation
Analytical/Methods Development	ARD	2.25
Packaging Support and Development	Cigt. Tech. Div.	1.50
Analyses of Prototypes	CTSD	0.13
POL Testing of Prototypes	PED	0.24
Production of prototypes & Subjective Evaluations	Semi Works	1.43

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Domestic Product Development

Category: Market Place Driven **Included in 1992-1996 Plan:** Yes

Start Date: 1992 **Completion Date:**

Program Description: **This program addresses product development from the position of executing initiatives identified as market driven. The program encompasses Trademark Portfolio management opportunities, brand extensions and repositionings, and new technologies that when incorporated add value to our premium brands.**

Importance to PM-USA: Provides opportunitiy for increased market share and increased volumes thus providing growth in income and cash flow for P.M.U.S.A.

Program Benefits:

1. Provides a vehicle to address alternate purchases of P.V. brands vs. Premium brands.
2. Vehicles for R&D to support P.M.U.S.A. business plan.
3. Provides vehicle to execute opportunities in market identified by Marketing and Market Research.

Program Leadership:

Functional Area: Dom. Prod. Dev. **Department:** R&D **Program Leader:** C. B. Altizer

Support Required From	1993 Man-Years	Leadership Dept. (93)
Engineering	3.00	23.27
Manufacturing Services	0.15	
Technical Services	0.20	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones

	1993 1 2 3 4	1994 1 2 3 4	1995 1 2 3 4	1996 1 2 3 4	1997 1 2 3 4
Marlboro RX					
Merit 3mg					
Va. Slims K.S.					
Mid-Price K.S.					
Marlboro Ultra Lights					
Merit Ultima Menthol					
B&H K.S. Ultra Lights					
Merit Family Repositioning					
Parliament Lights Menthol					
Marlboro Extra (On Shelf)					
POL Administration					

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Domestic Product Development **Program No.:** _____

Category: Market Place Driven **Date Prepared:** _____

Start Date: 1992 **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Marlboro Express	L. Vinson	.75		
Merit 3mg	B. Monahan	.40		
Va. Slims K.S.	L. Wettle	.75		
Mid-Price K.S.	D. Atkinson	.30		
Marlboro Ultra Lights	L. Vinson	.25		
Merit Ultima Menthol	B. Monahan	.40		
B&H K.S. Ultra Lights	M. White	.30		
Merit Family Repositioning	B. Monahan	.15		
Parliament Lights Menthol	M. White	.15		
Marlboro Extra	D. Newman	.10		
POL Administration	D. Atkinson	.23		

Type of Support	Support Division	Mgr.
Analytical for development & POL's	CTSD	4.80
POL testing for MD Development & Controls	PED	3.00
Process Tobacco, Cigts. & POL Preparation	Semi Works	6.82
Filter Dev. for New Products	Filter Dev.	0.41
Specifications	Tech. Services	0.25
Develop., flavor analyis, subj. panels, factory trials & start-up	Flavor Tech.	4.21

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1993 -1997 Five-Year Plan

Program Summary

Program: Domestic Product Development

Category: Product Technology **Included in 1992-1996 Plan:** _____

Start Date: Ongoing **Completion Date:** _____

Program Description: **This program provides the vehicle for incorporation and evaluation of newly developed technologies and their contribution to added value for premium brands. This program also deals with the departmental operating efficiency and with manufacturing efficiency as well.**

Importance to PM-USA: By creating added value for premium brands switching to Price Value Brands will be reduced.

Program Benefits: Computer data based management will potentially reduce turn-around time for product development. O.V. target consolidation offers efficiency opportunities in manufacturing. The low sidestream/low odor program may provide added value for premium brands.

Program Leadership:

Functional Area: Dom. Prod. Dev. **Department:** R&D **Program Leader:** C. B. Altizer

Support Required From	1993 Man-Years	Leadership Dept. (93)
Manufacturing Services	0.05	8.96
Technical Services	0.05	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones

	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Low Sidestream/Low Smoke	▒	▒	▒	▒																
Computer Data Base Management	▒	▒	▒	▒	▒	▒	▒	▒												
Pack OV Target Consolidation	▒	▒	▒	▒																

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Domestic Product Development **Program No.:** _____

Category: Product Technology **Date Prepared:** _____

Start Date: 1992 **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Low Sidestream/Low Smoke	D. Newman	0.65		
Computer Data Base Mgmt.	R. Maher	1.20		
Pack OV Target Consolidation	W. Claflin	0.30		

Type of Support	Support Division	Mgr.
Filter/flavor analysis (LSS/LO)	ARD	1.00
Computer data base management	CAD	3.60
LS/LO & OV Target Consolidation	CTSD	0.60
POL Testing LSS/LO Prod. Dev. & Controls	PED	0.24
Process Tobacco, Cigts. & POL Preparation	Semi Works	0.55
Filter Development for new products	Filter Dev.	0.12
Pack OV Target Consolidation	Phy. Research	0.20
Develop., flavor analysis, subj. panels, factory trials & start-ups	Flavor Technology	0.50

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Domestic C.I. Program **Program No.:**

Category: Domestic Product Support & Development **Date Prepared:** 8/19/92

Start Date: Ongoing **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform complete C.I. Testing on Current				
Production of Major Brands Monthly	Strang/Laffoon		ongoing	ongoing
Perform Limited C.I. Testing on Available Production				
of Minor Brands Twice per Year	Strang/Laffoon		ongoing	ongoing
Report Testing Results in Bound Report Bimonthly	Strang/Laffoon		ongoing	ongoing
Highlight New Brands, Brand Modifications,				
and Packaging Changes Monthly	Strang/Laffoon		ongoing	ongoing
		TOTAL = 15.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Specification Maintenance Program **Program No.:**

Category: Domestic Product Support & Development **Date Prepared:** 8/19/92

Start Date: Ongoing **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform Smoking/Physical Testing on Weekly Cigarette Production.	Hughes		ongoing	ongoing
Report Testing Results by Brand and Week of Production on a Monthly Basis.	Laffoon		ongoing	ongoing
Report Out of Specification Trends for Tar and Menthol Weekly.	Laffoon		ongoing	ongoing
		TOTAL = 22.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: International Product Development - Marketplace Driven

Category: Export Product Development **Included in 1992-1996 Plan:** Yes

Start Date: On-going **Completion Date:** 1997

Program Description: Support the growth of international business through the launch of new commercial products and through support of JT licensee production.

Importance to PM-USA: The international export market generates volume for PM USA in excess of 110 billion cigarettes per year, and also provides to PM USA growth potential, estimated to increase to 150 billion units in 1997. Through developing new products, based on strategic market research, international markets can be further penetrated, providing additional business for PM USA.

Program Benefits: New products are developed utilizing effective market research that meet international management's business plans, as well as comply with PM USA's capabilities and consolidation efforts. Therefore, products with the greatest chance of generating new market share, with minimal disruption to PM USA logistics are launched.

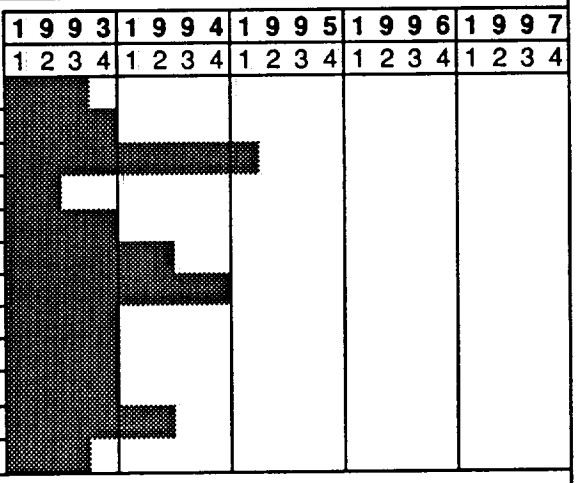
Program Leadership:

Functional Area: R&D **Department:** Cigt. Tech. **Program Leader:** J. N. Smith

Support Required From	1993 Man-Years	Leadership Dept. (93)
Technical Services	TBD	TBD
Quality Assurance	TBD	
Production Planning & Control	TBD	
Purchasing	TBD	
Engineering/Manufacturing/Leaf	TBD	

Capital Requirements (93) $ _____ **1993-1997 $** _____ **650 Timing** _____

Program Milestones


1 9 9 3 1 9 9 4 1 9 9 5 1 9 9 6 1 9 9 7
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
JT Marlboro DIET Inclusion/Tar Reduction
JT Marlboro Lights Menthol
Lark Ultra Lights - Japan
Lark Lights - Japan
Merit Ultra Lights - Japan
Smoother Blend Development - Japan
Caster Type Ultra Lights Development - Japan
Graphics Upgrades - Japan
Virginia Slims Menthol 100 FTB - Japan
Virginia Slims Lights Menthol 100 FTB 10's - Japan
Virginia Slims Lights 100 FTB Product Concepts - Japan
PMSL 100mm Tar Reduction - Japan

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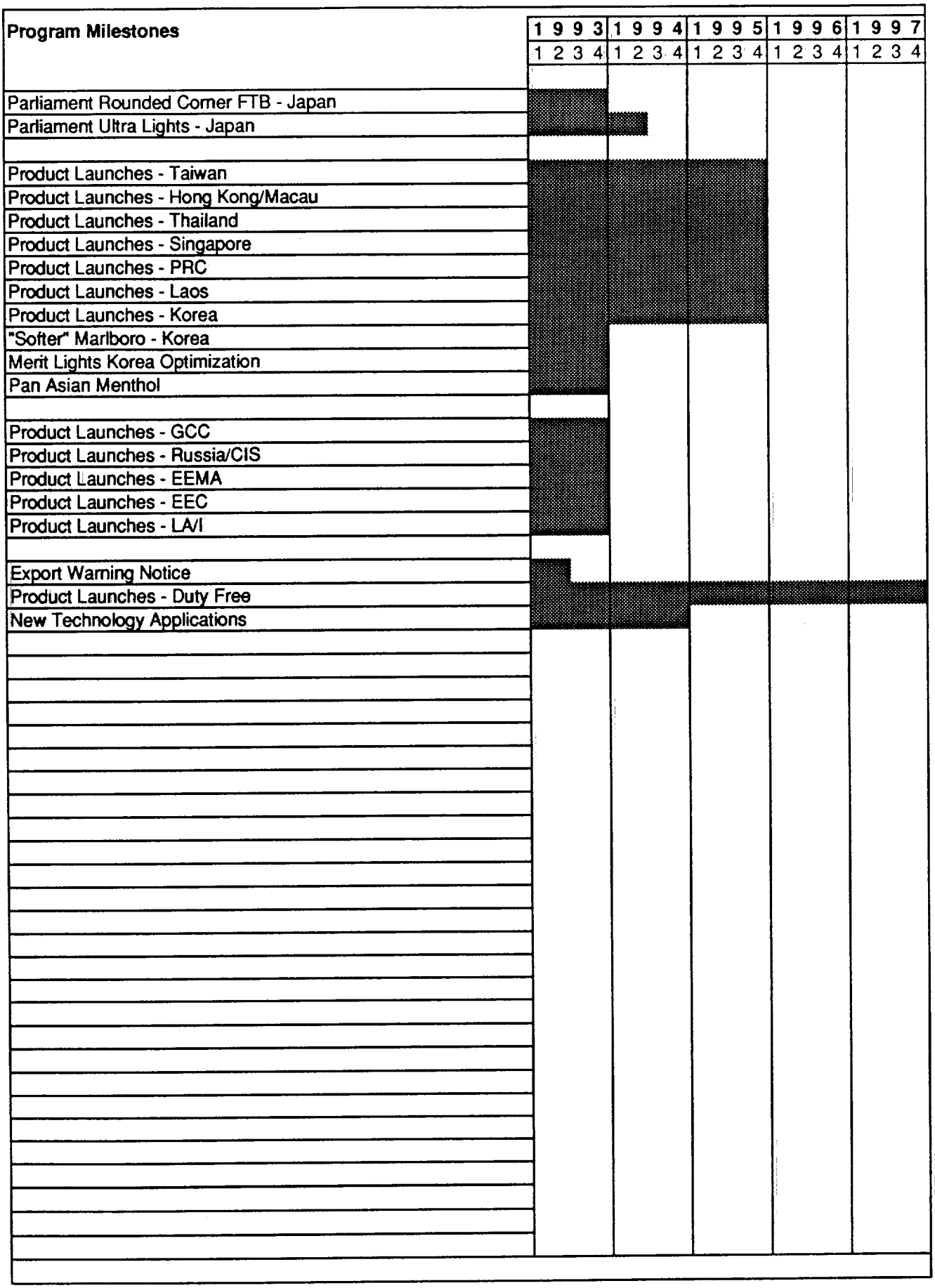
Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000


Program Milestones
1 9 9 3
1 9 9 4
1 9 9 5
1 9 9 6
1 9 9 7
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
Parliament Rounded Corner FTB - Japan
Parliament Ultra Lights - Japan
Product Launches - Taiwan
Product Launches - Hong Kong/Macau
Product Launches - Thailand
Product Launches - Singapore
Product Launches - PRC
Product Launches - Laos
Product Launches - Korea
"Softer" Marlboro - Korea
Merit Lights Korea Optimization
Pan Asian Menthol
Product Launches - GCC
Product Launches - Russia/CIS
Product Launches - EEMA
Product Launches - EEC
Product Launches - LA/I
Export Warning Notice
Product Launches - Duty Free
New Technology Applications

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: International Product Development - Marketplace Driven **Program No.:** _____

Category: Export Product Development **Date Prepared:** 3/12/1993

Start Date: On-going **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
JT Marlboro DIET Inclusion/Tar Reduction	Hickle			
JT Marlboro Lights Menthol	Hickle			
Lark Ultra Lights - Japan	Lambert			
Lark Lights - Japan	Sealey			
Merit Ultra Lights - Japan	Tierney			
Smoother Blend Development - Japan	Lambert			
Caster Type Ultra Lights Development - Japan	Hickle			
Graphics Upgrades - Japan	Hickle/Lambert			
Virginia Slims Menthol 100 FTB - Japan	Hickle			
Virginia Slims Lights Menthol 100 FTB 10's - Japan	Hickle			
Virginia Slims Lights 100 FTB Product Concepts - Jap.	Hickle			
PMSL 100mm Tar Reduction - Japan	Easley			
Parliament Rounded Corner FTB - Japan	Easley			
Parliament Ultra Lights - Japan	Graff			
Product Launches - Taiwan	Easley			
Product Launches - Hong Kong/Macau	Easley			
Product Launches - Thailand	Graff			
Product Launches - Singapore	Sealey			
Product Launches - PRC	Sealey			
Product Launches - Laos	Easley			
Product Launches - Korea	Sealey/Hickle			
"Softer" Marlboro - Korea	Sealey			
Merit Lights Korea Optimization	Sealey			
Pan Asian Menthol	Hickle			
Product Launches - GCC	Tierney			
Product Launches - Russia/CIS	Graff			
Product Launches - EEMA	Tierney/Graff			
Product Launches - EEC	Graff			
Product Launches - LA/I	Easley			
Export Warning Notice	Easley			
Product Launches - Duty Free	Easley			
New Technology Applications	Lambert			
Type of Support	**Support Division**	**Mgr.**		
Analytical Evaluations	ARD			
Hardware and Software Support	CAD			
Analytical Evaluations	CTSD			
Consumer Product Testing, Market Research	PED			
Prototype and Consumer Test Production	Semi Works			
Subjective Evaluations, Analytical Evaluations	Flavor Technology			
Filter Development	Filter Technology			

*See Consumer Research Technology Plan

2022950212

Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: International Product Development - Operations Driven

Category: Export Product Development **Included in 1992-1996 Plan:** Yes

Start Date: On-going **Completion Date:** 1997

Program Description: Support the current international business with respect to export products and JT Licensee products in the area of improvement of quality, cost/productivity, capacity and environmental compliance.

Importance to PM-USA: The international export market generates volume for PM USA in excess of 110 billion cigarettes per year, and also provides to PM USA growth potential, estimated to increase to 150 billion units in 1997. Through supporting operations in cost reduction, consolidation and quality improvement initiatives, PM USA will achieve goal of becoming the low cost/top quality producer in the world market, and continue to penetrate international markets.

Program Benefits: These programs provide opportunities to optimize export products through improvements to quality, cost/productivity, and therefore maintain/improve existing market share, as well as enter markets where previously unrepresented.

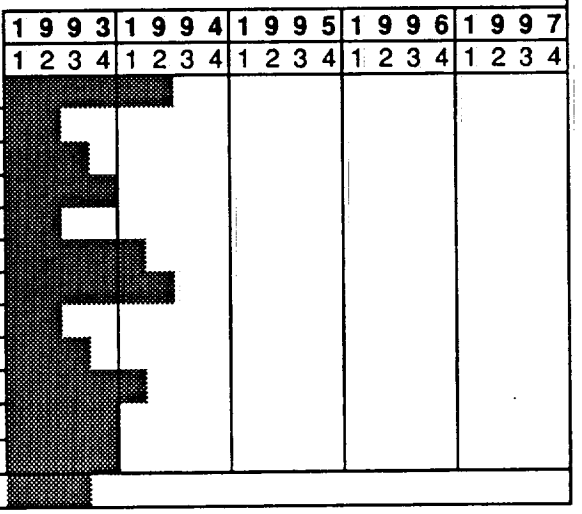
Program Leadership:

Functional Area: R&D **Department:** Cigt. Tech. **Program Leader:** J. N. Smith

Support Required From	1993 Man-Years	Leadership Dept. (93)
Technical Services	TBD	TBD
Quality Assurance	TBD	TBD
Production Planning & Control	TBD	TBD
Purchasing	TBD	TBD
Engineering, Manufacturing, Leaf	TBD	TBD

Capital Requirements (93) $ _____ **1993-1997 $** _____ **650 Timing** _____

Program Milestones


1 9 9 3 1 9 9 4 1 9 9 5 1 9 9 6 1 9 9 7
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
Pin Perforation Technology
Porous Combining Wrap
Carbon Consolidation
Dual Hopper Max
Parliament Filter Optimization
Carbon Loading Reduction
High Speed Lark Combining (Vamp)
JT Marlboro Factory Location Change
L&M/Chesterfield Consolidation
NET Inclusion
Grain Implementation
Marlboro Modifications
Wood Pulp Paper

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: International Product Development - Operations Driven **Program No.:**

Category: Export Product Development **Date Prepared:** 3/12/93

Start Date: On-going **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Pin Perforation Technology	Graff			
Porous Combining Wrap	Lambert			
Carbon Consolidation	Lambert			
Dual Hopper Max	Lambert			
Parliament Filter Optimization	Lambert			
Carbon Loading Reduction	Lambert			
High Speed Lark Combining (Vamp)	Lambert			
JT Marlboro Factory Location Change	Hickle			
L&M/Chesterfield Consolidation	Graff			
NET Inclusion	Sealey			
Grain Implementation	Sealey			
Marlboro Modifications	Sealey			
Wood Pulp Paper	Easley			

Type of Support	Support Division	Mgr.
Analytical Evaluations	ARD	
Hardware and Software Support	CAD	
Analytical Evaluations	CTSD	
Consumer Product Testing, Market Research	PED	
Prototype and Consumer Test Production	Semi Works	
Subjective Evaluatins, Analytical Evaluations	Flavor Technology	
Filter Development	Filter Technology	

*See Consumer Research Technology Plan

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Product Development - Licensees & Affiliates - Marketplace Driven

Category: Goal 2 **Included in 1992-1996 Plan:** Yes

Start Date: Ongoing **Completion Date:**

Program Description: **This progam is intended to generate new corporate products to be produced by our affiliates and licensees.**

Importance to PM-USA: **Centralization of product development utilizes corporate resources most effectively and effectively.**

Program Benefits: New products are vital for growth of the business.

Program Leadership:

Functional Area: PMI Marketing **Department:** **Program Leader:** A. H. Confer

Support Required From	1993 Man-Years	Leadership Dept. (93)
IOS	0.2	R&D
Leaf Department	1.0	R&D
Technical Services	0.2	R&D
PMI Regional Personnel	2.0	R&D

Capital Requirements (93) $ **1993-1997** $ **650 Timing**

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Over																				

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Prod. Dev. - Licensees & Affiliates - Marketplace Driven **Program No.:**

Category: Goal 2 **Date Prepared:** 3/9/93

Start Date: Ongoing **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
COSTA RICA				
L&M/L&M LIGHTS	Haskins	.15		
DOMINICAN REPUBLIC				
Chesterfield	Tinker	.10		
L&M Lights	Tinker	.15		
Marlboro Lts. Menthol	Tinker	.05		
MALAYSIA				
Chesterfield	Horne	.20		
MEXICO				
B&H 100 Reg. and Men. FTB	Tinker	.05		
B&H 100 Lts. FTB	Tinker	.10		
Parliament KS	Tinker	.10		
PANAMA				
L&M Menthol	Tinker	.10		
PHILIPPINES				
PM KS Menthol	Horne	.20		
Virginia Slims Menthol	Drumwright	.10		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
Prototype CI Analyses	CTSD	1.7		
Product Mappings and External Panels	PED	.50		
Prototype Production	Semi Works	.20		
Prototype Casing/Flavor Systems	FTD	.50		

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Product Development - Licensees & Affiliates - Operations Driven

Category: Goal 1 **Included in 1992-1996 Plan:** Yes

Start Date: Ongoing **Completion Date:**

Program Description: This program is intended to optimize the existing corporate products produced by our affiliates and licensees.

Importance to PM-USA: Centralization of product improvement utilizes corporate resources most effectively and efficiently.

Program Benefits: Product optimization helps ensure conformance to USA standards (i.e. - uniformity), ingredient compliance, and may yield cost reductions.

Program Leadership:

Functional Area: PM USA Operations **Department:** R&D **Program Leader:** A. H. Confer

Support Required From	1993 Man-Years	Leadership Dept. (93)
IOS	0.1	R&D
Leaf Department	1.0	R&D
Technical Services	0.3	R&D
PMI Regional Personnel	1.0	R&D

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Over																				

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Prod. Dev. - Licensees & Affiliates - Operations Driven **Program No.:**

Category: Goal 1 **Date Prepared:** 3/9/93

Start Date: Ongoing **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
ARGENTINA				
Casing/Flavor Standardization	Tinker	.05		
COSTA RICA				
Marlboro Improvement	Haskins	.20		
INDONESIA				
Marlboro BBS	Horne	.20		
Plugwrap Consolidation	Horne	.10		
MEXICO				
USA Sourced Casings/Flavors	Tinker	.05		
PHILIPPINES				
Diacel Tow Qualification	Horne	.10		
Marlboro Improvement	Drumwright	.10		
SPECIFICATIONS				
Cigarette	Drumwright	.30		
VENEZUELA				
L&M Lights	Haskins	.10		
Marlboro Improvement	Tinker	.10		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
Prototype CI Analyses	CTSD	1.5		
Product Mappings and External Panels	PED	.50		
Prototype Production	Semi Works	.20		
Prototype Casing/Flavor Systems	FTD	.50		

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Japan/Asia C.I. Program **Program No.:**

Category: International Product Support and Development **Date Prepared:** 8/19/92

Start Date: Ongoing **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform Complete C.I. Testing on Current Samples from Japan Monthly & on Asia Samples as Received	Laffoon		ongoing	ongoing
Report Japan Testing Results in a Bound Report Quarterly and Report Asia Results in a Bound Report Semiannually	Laffoon		ongoing	ongoing
Report New Brands by Memo as Received. Highlight New Brands, Brand Modifications, and Packaging Changes in Respective Quarterly & Semiannual Reports.	Laffoon		ongoing	ongoing
		TOTAL = 10.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Monthly Testing of Affiliate & Licensee Production **Program No.:**

Category: International Product Support & Development **Date Prepared:** 8/19/92

Start Date: Ongoing **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform complete C.I. Testing on Current Production or Current Sample in the case of Competive Products	Laffoon		ongoing	ongoing
Report Testing Results in a Memo by Country and Month of Production	Laffoon		ongoing	ongoing
		TOTAL = 12.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Certification Testing **Program No.:**

Category: International Product Support & Development **Date Prepared:** 8/19/92

Start Date: Ongoing **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform Smoking/Physical Testing on Lots as Received by Factories.	Chambers		ongoing	ongoing
Report Release of Product to Shipping.	Chambers		ongoing	ongoing
Report Out of Specification Product to Shipping, Technical Services, and Plant QA	Chambers		ongoing	ongoing
Report GCC Smoking/Physical Test results to Technical Services in a monthy report.	Laffoon		ongoing	ongoing
		TOTAL = 4.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Paper Technology

Category: Product Development **Included in 1992-1996 Plan:** _____

Start Date: On-going **Completion Date:** 1995

Program Description: The mission of the Paper Technology program is to develop improved and/or proprietary cigarette papers to address product needs, improve product performance and manufacturing efficiency, and to meet external requirements.

Importance to PM-USA:

1. Improved product performance through optimization of existing cigarette papers.
2. Improve inventory management by minimizing the number of cigarette papers.
3. Support for new product development.
4. Provide the means for response to market or other external requirements.

Program Benefits: More uniform products through improved uniformity of direct materials. Greater efficiency in the use of direct materials. Enhanced ability to respond to external requirements with less cost and disruption of operations. Value-added features for full margin brands.

Program Leadership:

Functional Area: R&D **Department:** R&D **Program Leader:** S. Baldwin

Support Required From	1993 Man-Years
Engineering	0.75
Operations Services	0.20
QA/QE	0.35
Purchasing	0.20
Leadership Dept. (93)	28.65

Capital Requirements (93) $ 150,000 **1993-1997** $ 1,700,000** **650 Timing** **

Program Milestones

	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Banded Cigarette Papers																				
Develop Improved Wood Pulp Cigarette Papers																				
Cigarette Paper Consolidation																				
Cigarette Paper Specifictions																				
Reduced Sidestream Cigarette Papers (Calcium Carbonate)																				
Reduced Sidestream (Magnesium-Based) Cigarette Papers																				
-- Decision Point																				
Sidestream Aroma Modification																				
Cellulose Derivitization																				
Paper Coatings																				

**Estimates Only -- No Quotes Yet Available

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Paper Technology **Program No.:**

Category: Cost/Productivity & Technology Development **Date Prepared:** 3/93

Start Date: On-going **Completion Date:** 1995

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Banded Cigarette Paper (1995)	Lanzillotti	8.1		
Initiate Scale-Up Effort				
Develop Commercial Process				
Transfer Technology to Factory				
Wood Pulp Cigarette Papers	Baldwin/Geiszler	2.35		
Evaluate Wood/Flax Blends				
Alternative Pulping and Bleaching				
*Decision Point			*	
Cigarette Paper Consolidation	Baldwin/Geiszler	0.95		
Obtain Cost Reassessment				
*Decision Point			*	
Cigarette Paper Specifications	Baldwin/Floyd	0.65		
Propose New Specifications				
Monitor Implementation				
Reduced Sidestream Papers	Baldwin/Tafur/Goodman			
Calcium Carbonate Papers		1.25		
Magnesium Carbonate Papers	Baldwin/Seeman	0.78		
*Decision Point			*	
Sidestream Aroma Modification	Baldwin/Tafur	1.52		
Cellulose Modification				
*Decision Point			*	
Paper Coatings				

Type of Support	Support Division	Mgr.
	ARD	6.4
	CAD	0.5
	CTSD	0.9
	PED	0.60
	Semi Works	0.85
	Patent	0.20
	Research Engr.	0.50
	Product Research	3.10

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: R&D Product Technologies (Filter Technology) Revised: 3/9/93

Category: Product Development **Included in 1992-1996 Plan:** Yes

Start Date: On-going **Completion Date:** Dec. 1994

Program Description: This program's objective is to identify commercial technologies and apply them to the design and development of new and unique filter products. In addition, this program supports the business in the areas of operations optimization, cost improvement, quality improvement, and management of environmental issues.

Importance to PM-USA: This program provides opportunities for product development and resulting market share improvements. It also provides for the improvement of PM's competitive position through the development of novel and proprietary technologies. The program allows PM to maintain a superior quality image and position among its competitors.

Program Benefits: Program benefits include new and unique filter materials and configurations. Program provides cost and performance improvements in existing product applications.

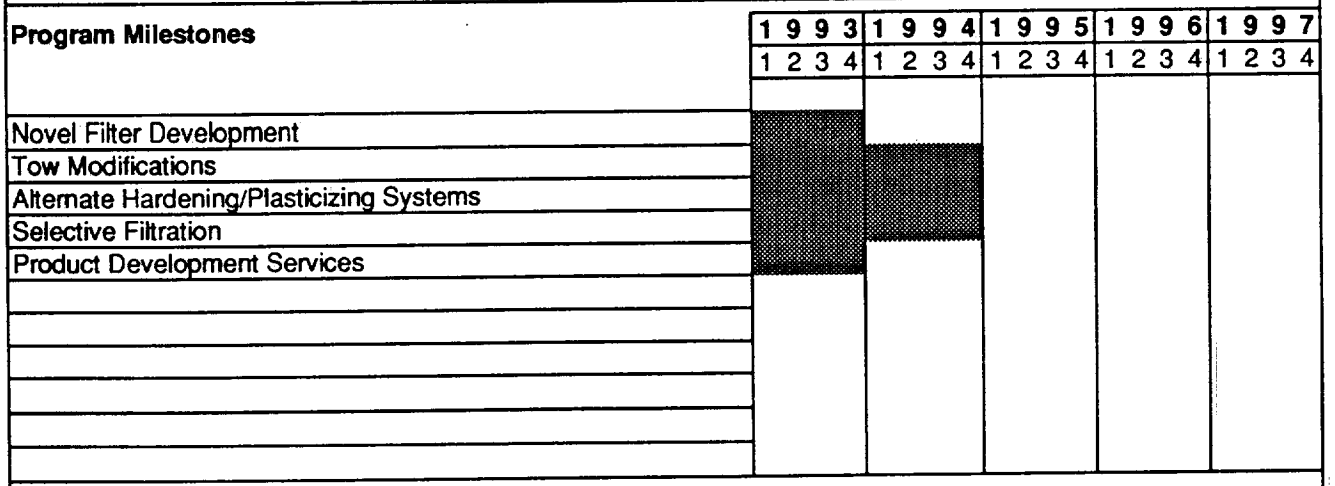
Program Leadership:

Functional Area: Filter Technology **Department:** R&D **Program Leader:** Newman/Hearn

Support Required From	1993 Man-Years	Leadership Dept. (93)
Engineering	0.04	6.60
Operations Services	0.04	

Capital Requirements (93) $ 67.5 **1993-1997** $ 5.0 **650 Timing**

Program Milestones


1 9 9 3 1 9 9 4 1 9 9 5 1 9 9 6 1 9 9 7
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
Novel Filter Development
Tow Modifications
Alternate Hardening/Plasticizing Systems
Selective Filtration
Product Development Services

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: R&D Product Technologies (Filter Technology) **Program No.:**

Category: Product Development **Date Prepared:** 3/9/93

Start Date: On-going **Completion Date:** Dec. 1994

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Novel Filter Development	Newman/Hearn	2.95		
Alternate Hardening/Plasticizing Syst	Newman/Finley	0.40		
Tow Modifications	Newman/Hearn	0.60		
Selective Filtration	Newman/Finley	0.25		
Product Development Services	Hearn/Newsome	2.40		

Type of Support	Support Division	Mgr.
Materials Testing, Smoke Testing	ARD	0.50
Filter Prototypes, Materials Evaluations	Semiworks	1.00
Sensory Evaluations	Flavor Technology	0.50
Handsheet Development, Material Evaluations	Paper Technology	0.50
Technology Management	Tech. Assessment	0.50
Technology Management	Prod. Research	0.25
Total Resource Allocations		9.85

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Tobacco Research

Category: _____ **Included in 1992-1996 Plan:** _____

Start Date: 1/1/93 **Completion Date:** _____

Program Description: This program is directed towards acquiring additional pertinent and necessary knowledge about tobacco. Special emphasis given to tobacco supplies, tobacco storage and stabilization and final product yield.

Importance to PM-USA: Through improved knowledge and understanding of tobacco feedstocks and how to protect them, provide better cost efficiency in tobacco utilization at acceptable quality.

Program Benefits: Acquisition of this knowledge will facilitate better tobacco utilization and cost efficiency and enhance opportunities to maintain quality in the changing global environment.

Program Leadership:
Functional Area: _____ **Department:** _____ **Program Leader:** _____

Support Required From	1993 Man-Years
Leaf	0.1
Engineering	TBD
Quality Assurance	0.05

Leadership Dept. (93)

Capital Requirements (93) $ _____ **1993-1997 $** _____ **650 Timing** _____

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO ENTOMOLOGY				
Cigarette beetle physiological differences				
Differences to Kabat®	D. Coar	0.60		
- Monitor facilities for infestation				
- Collect and establish CB cultures on methoprene-free flue cured tobacco				
- Determine aberrant response to R,S-methoprene in feral populations				
- Consult with Tobacco Biochemistry on the development of a method to isolate mtDNA				
- Compare mtDNA patterns with their response to Kabat®				
- Develop alternative methods to determine the aberrant response				
Differences to Phosphine				
- Collect CBs and submit for phosphine resistance				
- Compare MtDNA patterns of CB populations with phosphine				
- Compare PM and USDA data				
Evaluate Kabat® on Stems	D. Coar	0.50		
- CB feeding studies				
- 6 mo. Kabat® migration study				
- Dose response curve				
- Evaluate pilot process at LPF				
- Conduct residue analysis				
- Final feeding studies on LPF samples				
- Completion report				

Type of Support	Support Division	Mgr.
Methoprene (HPLC) Analysis	ARD	TBD
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO ENTOMOLOGY (cont.)				
Evaluate Turbocide® for Dianex® Treatment	M. Tickle	0.30		
- Obtain project proposal				
- Establish responsibilities				
- Investigate patent/confidentiality				
- Investigate safety aspects				
- Design and evaluate Turbocide® system				
- Present preliminary report				
- Evaluate Turbocide® application to equipment				
- Update patent				
- Report to management				
- Additional experiments or incorporation of the Turbocide® + S-methoprene system				
Determine CB dose response curve to phosphine	D. Faustini	0.40		
- Obtain phosphine resistant colony from USDA				
- Submit cigarette beetle colonies (laboratory, USDA, methoprene and non-methoprene ferals) to Chem. Services (PRD) for PH3 response				
- Prepare special report				
Evaluate Alternative CB Control Agents	D. Coar	0.50		
A. New Compounds				
- Compile list; issue potential alternatives quarterly				
- Procure alternatives and submit for toxicological screening				
- Submit potentials for pyrolysis assays				
- Conduct bioassays of potentials				

Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO ENTOMOLOGY (cont.)				
B. Current Compounds				
- Request Nylar® formulation components				
- Submit proposal to gain approval to do work				
- Determine potential synergy with Nylar® and Kabat®				
- Determine potential synergy with Kabat® and Hydroprene®				
- Issue report				
- Bioassay of Avermectin® (waiting for tox. data)				
- Bioassay of RH-5849 (waiting for tox. data)				
- Collect, culture, and bioassay of the CB parasitoid against CBs				
Eliminate Methyl Bromide for Treatment for Export	M. Tickle	0.35		
Cut Filler				
- Conduct field tests employing CBs in BBO, MT, RCB and RL				
- Develop a direct inclusion flow diagram				
- Monitor CB populations at Westab				
- Monitor sanitation procedures at Alleghany warehouse complex				
- Amend compliance Agreement				
Determine if Cigarette Manufacturing Equipment Kills CBs	M. Tickle	0.30		
- Write proposal				
- Establish responsibilities				
- Review safety aspects				
- Schedule time guidelines and evaluate equipment				
- Investigate direct inclusion as it relates to CB infestations				
- Write up completion report				
Packaging Materials Resistant to CBs	D. Coar	0.15		
- Become familiar with packaging process				
- Submit proposal				
- Artifically infest pacakages (as needed)				

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO ENTOMOLOGY (cont.)				
Provide Support to Operating Companies	D. Faustini	0.20		
- Provide assistance at Leaf storage fumigations				
- Attend pesticide meetings				
- Technical support to licensees and affiliates				
- Technical support to PM USA				
- Monitor environmental and regulatory issues				
Maintain Stored Product and Field Pest Colonies	T. Burruss	0.15		
- Culture CBs				
- Culture CBs for egg laying				
- Maintain colony histories with CAD assistance				
- Culture other insect colonies				
- Maintain adequate supplies for testing				
Qualification of the Methoprene ELISA	E. Morrisette	0.90		
- Write proposal				
- Perform ruggedness test				
- Write proposal for lab studies				
- Carry out lab studies				
- Prepare SOP				
- Train personnel				
Evaluate the Insect-Detect-Kit	E. Morrisette	0.10		
- Write proposal				
- Attend conference to gather information				
- Obtain commercial kit				
- Evaluate kit				
- Report findings				
- Transfer insect-detect technology				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD	TBD		
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO ENTOMOLOGY (cont.)				
Identify Insect-related Customer Complaints	D. Coar	0.25		
- Obtain and evaluate Product Audit data				
- Write proposal				
- Conduct feeding direction studies				
- Issue report from feeding study				
- Investigate customer complaints (CC) at the request of Product Audit				
- Monitor geographical location of CCs				
- Provide assistance to Product Audit				

Type of Support	Support Division	Mgr.
Methoprene (HPLC) analysis	ARD	TBD
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO MICROBIOLOGY				
Total Utilization				
- monitor microbiol. and chemical data of	D. Chadick	0.2		
stored wet tobacco materials				
- collect, analyze and report data from wet tobacco				
materials (as needed)				
Evaluate other direct materials	D. Chadick	0.2		
- Collect, analyze and report data from adhesives				
and plasticizers				
Humectants Replacement	D. Chadick	0.2		
- Collect samples, analyze and report data				
Customer Complaints as required by Product Audit	D. Chadick	0.2		
- Determine bacteria, mold and yeast counts				
Evaluate Sylgard® as a mold inhibitor	R. McCuen	0.4		
- Write proposal				
- Investigate Sylgard® in lab and field studies				
- Make recommendations for Use(s)				
Determine propensity for feedstocks to support microbial growth	D. Chadick	0.8		
- Obtain and analyze feedstocks				
- Determine the presence of natural inhibitors				
or inhibitory environmental conditions				
- Determine need for further experiments				
Evaluate ELISA to count microorganisms	D. Chadick/E. Morrisette	0.05		
- Obtain micro-ELISA literature				
- Write proposal				
- Investigate ELISA to quantify microorganisms				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO STRUCTURE				
Develop chemical stiffening processes and				
delineate mechanism				
1. Evaluate literature (including PM library, central	Chan/Krauss	0.1		
files, interviews)				
2. Evaluate current CV measurement methods;	Chan/Krauss	0.5		
develop improved predictive method for				
measuring filling power				
- evaluate procedures at various sites				
- evaluate other procedures for moisture				
ecullibration				
- evaluate centrifugal method for determining				
filling power				
3. Investigate effect of calcium supplements	Krauss	0.5		
- determine conditions for application of CaCl2				
- measure physical properties of cured leaves				
- analyze cell wall components				
4. Investigate effects of Ca(OH)2/sucrose	Chan	0.8		
- Apply Ca(OH)2/sucrose to cut filler				
- Apply Ca(OH2/sucrose to Br				
- Apply Ca(OH)2/sucrose to Bu				
5. ID tobacco components that participate in	Chan	0.8		
chemical stiffening induced by calcium salt				
treatment				
- Use differential extraction to ID classes of				
compounds needed for stiffening properties				
(hexane, ethyl acetate, ethanol, water)				
- Use specific enzymes to degrade macro-				
molecules needed for stiffening properties				
(glucosidases, pectinase, galacfuranidase)				
Type of Support	**Support Division**	**Mgr.**		
Chemical Analysis	ARD	TBD		
	CAD			
	CTSD			
	PED			
	Semi Works			
Consultation	Process Development	0.08		
Process Development	RTD	0.2		

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO BIOCHEMISTRY				
Cigarette Beetle Diversity				
1. Determine feasibility of utilizing PCR Tech.	Ayers	1.6		
- determine populations of beetles to study				
- develop method to isolate mtDNA				
- restriction digestion analysis of mtDNA				
- clone appropriate fragments				
- sequence fragments				
- design primers				
- develop PCR method for mtDNA, genomic DNA and				
intact beetle				
- repeat above steps with different populations				
2. Determine feasibility of utilizing 2D gel electrophoresis	Shulleeta	0.45		
- determine sample preparation method(s)				
- 2D of appropriate controls				
- establish parameters for protein analysis				
of different populations				
- establish data base of protein profiles				
3. Determine feasibility of utilizing chromosome analysis	Shulleeta	0.7		
- literature survey				
- establish SOP for control populations				
- profile different beetle populations				
Investigate a method to determine if tobacco has been	Ayers	0.3		
transformed				
- cure leaves from transgenic plants				
- determine conditions to amplify PMT gene				
from plasmid DNA				
- determine conditions to amplify PMT gene				
from green leaf				
- determine conditions to amplify PMT gene				
from cured leaf				
Maintain awareness of biotech advances	Ayers	0.1		
- literature/research facilities				
- current listing USDA environmental release permits				
- participate in Va. Biotech. Assoc.				
- participate in PM Biotech. Group				

Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research **Program No.:**

Category: **Date Prepared:**

Start Date: **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO BIOCHEMISTRY (cont.)				
Complete PMT Study	M. Shulleeta	0.05		
Establish tobacco organ cultures	M. Shulleeta	0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Tobacco Research **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO AGRONOMY				
Provide support to meet PM and industry requirements	Bass	0.75		
and commitments to maximize quality and cost				
effectiveness of tobacco				
- select entries for RSPT & RFT programs				
- choose cooperators and seed entries				
- plan field plots and transplant				
- attend field tours to inspect plots				
- evaluate leaf tobacco at displays				
- submit samples for analysis				
- process tobacco and make cigarettes				
- evaluate cigarettes on company panels				
- report results				
- attend variety evaluation meetings				
- issue annual evaluation report				
- procure and deliver tobacco samples				
- maintain sample inventory				
- organize and conduct R&D tobacco tour				
- maintain awareness and coordinate Agr. Res. activities				
Provide tobaccos and botanical materials for PM	Bass	1.25		
- culture of transgenic material				
- sampling of transgenic leaf				
- seeding of GH stock tobacco				
- seeding of Selanum dulcamara				
- seeding of training center tobacco				
- seeding of Adm. Services tobacco				
- seeding of facilities management tobacco				
- harvest of transgenic material seed				

Type of Support	Support Division	Mgr.		
sample analysis	ARD	0.18		
	CAD			
	CTSD			
	PED			
make cigarettes/process tobaccos	Semi Works	0.01		

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN
Program Summary

Program: Tobacco Research Program No.: _____

Category: _____ Date Prepared: _____

Start Date: _____ Completion Date: _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
TOBACCO AGRONOMY (cont.)				
- delivery training center plants for film				
- delivery adm. service tobacco				
- delivery facilities management tobacco				
- culture of solanum dulcamara				
- culture GH stock tobacco				
- prepare plant growth chamber system				
- produced radiolabelled materials				
- provide special plant material				
- support tobacco structure program				
- GH maintenance functions				
- GH visitor tours				
Global Tobacco Profiling	Keene	0.56		
1. Review and collate existing info.				
- establish contacts				
- review and collate existing info. on Japanese, Or				
and other tobaccos				
2. Design and establish database (in collaboration				
with CAD and PRD)				
- establish database group within PRD				
- in conjunction with CAD establish rules and				
design for database				
- define parameters for database				
- establish database with CAD				
3. Evaluate existing analyses				
- review and evaluate routine leaf analysis				
- recommend other analyses				
- investigate methods for defining leaf processibility				
and/or other physical characters				
4. Acquire tobacco samples				
- maintain working relation with Leaf Dept.				
- in conjunction with Leaf establish most desirable				
geog. locations, type, etc. for acquisition of samples				
- acquire samples				

Type of Support	Support Division	Mgr.
Analysis of samples	ARD	0.08
Data base generation	CAD	TBD
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 -1997 Five-Year Plan

Program Summary

Program: Smoke Research

Category: _____ Included in 1992-1996 Plan: No

Start Date: 1/1/93 Completion Date: _____

Program Description: The Smoke Research Group consists of two components, Smoke Chemistry and Process Chemistry. It has been established to identify the critical factors necessary to support the development of new products by addressing cigarette component processing parameters and by investigating the measurement and characterization of cigarette smoke. The information generated will then be used to determine the relationships of these factors to cigarette design and consumer acceptance.

Importance to PM-USA: The fundamental understanding gained should lead to knowledge that can be directed toward support of and input to Programs of importance to the Company. This knowledge base can then be used effectively in the areas of current product improvement and quality and in the planning and development of new products.

Program Benefits: Ongoing support in the Primary Technology area is necessary to provide direction for current and future process modifications. Baseline data generation will provide information to address issues related to Project Tomorrow and in other special projects. These areas are critical to the current and future direction of the Company.

Program Leadership:

Functional Area: R&D Department: R&D Program Leader: H. J. Grubbs

Support Required From 1993 Man-Years Leadership Dept. (93)

Capital Requirements (93) $ _____ 1993-1997 $ _____ 650 Timing _____

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Smoke Research Support	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
1. Support the activities of the Product Research	R. Comes	0.10		
Division in the area of cigarette design and fabrication				
2. Support the activities of the Product Research	R. Comes	0.10		
Division in the area of subjectives				
3. Support the activities of the Product Research	P. Grantham	0.30		
Division by providing training in the areas of teams,				
teamwork, team dynamics, meeting skills, etc.				
4. Act as a technical advisor for all Smoke Resear	D. Leyden	0.50		
Project Teams	R. Jenkins	0.80		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.: _____

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date: _____

Program Milestones Baseline work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 1: Establish a baseline profile of chemical				
and physical components related to critical				
properties of cigarettes				
Strategy I: Determine appropriate methodologies for				
the analysis of MS and SS smoke in 1R4F				
Tactics:				
1. Evaluate the information available on 1R4F	K. Koller	0.20		
2. Evaluate current methods for MS and SS	S. Hassam	0.20		
smoke characterization				
3. Optimize existing analytical methods for	W. Lewis	0.10		
measurement of critical compounds				
4. Develop new methods for measurements	D. Douglas	1.20		
for critical compounds				
5. Develop new methods for physical measureme	D. McRae	0.80		
for critical parameters				
6. Establish standardized chemical and physical	K. Koller	0.50		
methods of analysis				
7. Document and update standardized methods	P. Grantham	0.10		
as needed				

Type of Support	Support Division	Mgr.
Routine analytical support	ARD	0.20
Statistical analysis support	CAD	0.10
	CTSD	
Assistance in panel formation	PED	0.20
	Semi Works	
Literature search	Library	0.10

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Baseline Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy II: Evaluate and develop smoke collection methods				
Tactics:				
1. Evaluate existing technology for MS and SS smoke collection	F. Hsu	0.15		
2. Develop and optimize collection methods for critical compounds	C. Tatum	0.25		
3. Investigate the gas phase/particulate phase equilibrium of smoke	D. McRae	TBD		
4. Develop appropriate SS generation/collection /sampling for subsequent analysis	D. McRae	TBD		
Strategy III: Coordinate with other programs and apply methodologies to appropriate cigarette models to establish a baseline	K. Koller	0.50		
Tactics:				
1. Study IM13				
2. Study IM14				
3. Study models from response surface methodolgy study				
4. Study cigarettes of varied circumference				
5. Study Tomorrow models				
6. Study cigarettes from Process Chemistry				
7. Study conventional cigarettes of sensory importance				
Strategy IV: Develop and maintain the capability for precusor/product studies				
Tactics:				
1. Utilize radioisotopes as required	R. Izac	0.20		
2. Utilize stable isotopes as required	S. Hassam	0.10		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.: _____

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date: _____

Program Milestones Baseline Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 2: Identify the chemical and physical components critical to the sensory properties of cigarettes				
Strategy I: Develop and evaluate methods for obtaining simultaneous subjective and analytical data				
Tactics:				
1. Interface with personnel from PED to establish required methods	F. Hsu	0.05		
2. Evaluate information relating to simultaneous organoleptic/analytical measurements	C. Hayes	0.05		
3. Evaluate and develop GC-Sniff Port for odor/aroma identification and threshold measurements	D. Douglas	0.20		
Strategy II: Establish the linkage between subjective and analytical results				
Tactics:				
1. Identify appropriate cigarette models with acceptable and/or desired subjective properties	C. Hayes	0.20		
2. Evaluate the sensory impact of the gas phase fraction	F. Hsu	0.40		
3. Fractionate the particulate phase by molecular weight and/or by functional groups and evaluate the sensory impact of the fractions	S. Haut	0.90		
4. Identify the physical properties of the aerosol critical to the sensory results	D. McRae	0.30		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 1: Characterize mainstream and sidestream				
smoke from designated areas of the cigarettes				
Strategy I: Determine if differences exist in smoke				
as a result of differences in mass burn rate				
Tactics:				
1. Initiate recruiting for the preparation of a	C. Hayes	0.10		
sensory panel				
2. Devise a general sampling/collection procedure	C. Tatum	0.05		
for the collection of mainstream smoke				
3. Initiate sampling and analysis of mainstream	D. Douglas	0.05		
smoke by appropriate instrumental methods				
4. Identify critical components in mainstream	C. Hayes	0.10		
smoke by sensory panel				
5. Correlate instrumetal and sensory data to	D. McRae	0.05		
determine critical components and make				
recommendations to Product Development				
6. Devise a general sampling/collection	C. Tatum	0.25		
procedure for the collection of sidestream smoke				
7. Initiate sampling and analysis of sidestream	D. Douglas	0.20		
smoke by appropriate instrumental methods				
8. Identify critical components in sidestream	C. Hayes	0.10		
smoke by sensory panel				
9. Determine additional studies as required to	D. McRae	TBD		
support Project Tomorrow related products				
Type of Support	**Support Division**	**Mgr.**		
Routine pyrolysis GC/MS	ARD	0.10		
Assistance in smoke component analysis	CAD	0.10		
	CTSD			
Assistance in statistical analysis	PED	0.10		
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.: _____

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date: _____

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy II: Determine the effect on smoke of				
condensation products which cause visible				
staining on rods				
Tactics:				
1. Obtain current knowledge regarding the cause	S. Haut	0.10		
of staining and its effect on subjectives				
2. Determine appropriate procedures for obtaining	S. Haut	0.20		
representative stain samples				
3. Isolate and identify critical stain components	D. Douglas	0.10		
4. Determine condensable/moisture/OV difference	S. Haut	0.30		
under stain areas and the effects on mainstream				
subjectives				
5. By pyrolysis or add-back determine	S. Haut	0.10		
sensory impact of appropriate stain components				
6. By pyrolysis or add-back determine the	J. Fournier	TBD		
consequences of condensation products on the				
pyrolysis of the paper				
7. Determine and evaluate additional needs of	S. Haut	TBD		
Project Tomorrow				
Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.: _____

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date: _____

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy III: Determine the effect on smoke of				
dispersing agents in selected areas of the rod				
Tactics:				
1. Determine if subjective differences exist betwee	C. Hayes	0.10		
different prototypes				
2. Determine sensory effects on conventional	C. Hayes	TBD		
cigarettes with added amounts of dispersing agents				
3. Determine quantitative differences of mainstrea	W. Lewis	0.10		
and sidestream smoke with different dispersing/				
binding agents				
Strategy IV: Determine if differences exist between				
pyrolysis products on designated areas of the paper				
Tactics:				
1. Identify appropriate paper samples for study	J. Fournier	TBD		
2. Determine and initiate appropriate ARD resourc	J. Fournier	TBD		
to conduct pyrolysis analyses				
3. Identify critical factors and plan any additional	J. Fournier	TBD		
analyses required				
4. Determine and evaluate additional plans as	J. Fournier	TBD		
needed				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 2: Develop appropriate analytical and sensory				
evaluation methods				
Strategy I: Utilize a sensory panel to determine				
criteria for subjective evaluations				
Tactics:				
1. Coordinate with PED and Flavor Development	C. Hayes	TBD		
to establish a subjective panel				
2. Devise appropriate sampling techniques for	C. Tatum	0.10		
subjective evaluation of smoke in designated areas				
on the rod				
3. Determine if subjective differences exist at	C. Hayes	TBD		
different areas on the rod				
4. Utilize GC-Sniff Port and other appropriate	D. Douglas	0.10		
techniques to determine qualitative and				
quantitative differences critical to subjectives				
Strategy II: Develop qualitative and quantitative				
methods for determining smoke components				
Tactics:				
1. Develop sampling techniques	D. McRae	0.20		
2. Determine critical components in smoke by	D. Douglas	0.20		
analytical/sensory techniques				
3. Determine if amount of critical components diffe	D. Douglas	TBD		
at specified areas of the rod				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy III: Develop a set of reference cigarettes and				
a set of chemical markers				
Tactics:				
2. Isolate Tomorrow-specific smoke compounds	S. Haut	0.10		
3. Evaluate the components' use as smoke	S. Haut	0.10		
markers				
4. Isolate tobacco-specific compounds	S. Haut	TBD		
5. Evaluate the components' use as smoke	S. Haut	TBD		
markers				
6. Identify and evaluate the use of artificial	S. Haut	0.10		
components as markers				
Goal 3: Correlate subjective results with physical				
and chemical parameters				
Tactics:				
1. Gather available analytical and sensory	C. Tatum	TBD		
data for Tomorrow-related products				
3. Determine correlations between physical and	C. Tatum	0.05		
chemical parameters and analytical/sensory				
data using appropriate statistical methods				
4. Identify significant factors	C. Tatum	0.05		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Tomorrow Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 4: Designate liaison between Smoke	P. Grantham	0.20		
Research, Physical Research, and Product				
Development				
Tactics:				
1. Designate Smoke Research liaison				
2. Communicate with other groups regularly				
3. Update work team members				

Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Special Project Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy I: Develop procedures for collection				
of smoke				
Tactics:				
1. Determine current state of collection	R. Comes	0.10		
procedures				
2. Design, modify, and/or construct collection	K. Koller	0.50		
procedures and/or devices				
3. Determine concentrations of materials	W. Lewis	TBD		
delivered to smoke				
4. Modify and/or optimize analytical procedures	F. Hsu	TBD		
Strategy II: Quantify compounds of importance				
Tactics:				
1. Determine which compounds are detectable	K. Koller	0.30		
in smoke				
2. Develop methods to quantitate compounds	F. Hsu	0.40		
present				
3. Collect time and temperature data relative	J. Fournier	0.20		
to delivery of compounds				
4. Determine maximum usable energy	J. Fournier	0.30		
while avoiding formation of defined compounds				
Strategy III: Survey compounds delivered under				
normal conditions				
Tactics:				
1. Determine volatile compounds delivered	F. Hsu	TBD		
2. Determine semi-volatile compounds delivered	D. Douglas	TBD		
3. Survey inorganic materials delivered	D. McRae	TBD		
4. Collect time/temperature data for volatile,	K. Koller	0.10		
semi-volatile, and inorganic material				
5. Optimize survey for selected compounds	M. Penn	0.10		
6. Incorporate data into appropriate database	M. Penn	0.10		
Type of Support	**Support Division**	**Mgr.**		
Routine analytical support	ARD	1.80		
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Special Project Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy IV: Optimize impact of nicotine				
Tatics:				
1. Determine mechanism by wnich nicotine is	D. McRae	TBD		
delivered				
2. Determine why impact from burley is lessened	S. Haut	TBD		
3. Identify adjustable parameters to modify	S. Haut	TBD		
nicotine imcact				
Strategy V: Identify coordinator to interact with	R. Comes	0.10		
Special Project resources				
Tactics:				
1. Coordinator to relay information				
2. Coordinator to assist in formulating priorities				
3. Coordination to prevent duplication of efforts				
4. Insure that security is maintained				
Strategy VI: Assist in the development of special				
products containing novel flavor additives				
Tactics:				
1. Participate in and monitor development of	R. Comes	0.10		
a stable menthol material				
2. Develop an understanding of menthol/nicotine	C. Hayes	TBD		
synergy				
3. Determine mechanism of menthol delivery	K. Koller	TBD		
4. Support identification and optimization of	K. Koller	TBD		
adjustable delivery parameters				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Special Project Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Stategy VII: Relate physical and chemical				
characteristics to subjective response				
Tactics:				
1. Develop traditional and real-time analytical	W. Lewis	TBD		
or subjective techniques				
2. Determine relative attributes that describe	C. Hayes	TBD		
smoke				
3. Determine the minimum energy necessary for	J. Fournier	TBD		
an acceptable subjective response				
4. Determine the effects of time and temperature	J. Fournier	TBD		
on subjective characteristics				
Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.: _____

Category: Smoke research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date: _____

Program Milestones Primary Technologies Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 1: Provide subjective testing of cigarette				
models resulting from the development of				
Primary Technology Process				
Strategy I: Develop and implement discrimination				
methods to quantify sensory differences and				
indicate sensory direction				
Tactics:				
1. Utilize single puff smoking evaluation	C. Hayes	0.30		
method and "same/different" judgements to				
evaluate PT models				
2. Evaluate and use 2 and 3 alternative Forced	C. Hayes	0.10		
Choice methods to evaluate PTI models with				
pre-identified attributes				
3. Analyze and report data	C. Hayes	0.10		
6. Address methodological issues	C. Hayes	0.10		
Strategy II: Develop and implement sensory				
profiling tools to characterize and map PT				
processing variables				
Tactics:				
1. Evaluate alternative profiling methods	C. Hayes	0.05		
2. Implement a descriptive panel and evaluate	C. Hayes	0.15		
single puff and whole cigarette profiling				
3. Obtain quantitative hedonic and non-hedonic	C. Hayes	0.10		
assessments of PTI models				
Type of Support	**Support Division**	**Mgr.**		
Routine analytical support	ARD	0.10		
Assistance in data manipulation	CAD	0.10		
	CTSD			
Panel database system/POL comparison	PED	0.50		
	Semi Works			
Participation in ongoing panels	Panelists	3.50		
Assistance in panel operation	Process Dev.	0.40		

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Primary Technologies Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Goal 2: Provide subjective/analytical testing				
of tobacco/cigarette models resulting from				
development of Primary Technologies processes				
Strategy I: Develop and evaluate methods for				
obtaining simultaneous subjective and analytical				
results				
Tactics:				
1. Evaluate the use of GC-olfactometry for the	C. Hayes	0.40		
identification of subjectively important components				
2. Evaluate split stream aerosol system	F. Hsu	0.10		
3. Determine standard operating procedures for	R. Comes	0.20		
the optimum simultaneous subjective and				
analytical measurements				
Strategy II: Establish linkage between subjective				
and analytical results				
Tactics:				
1. Analyze appropriate PT models using methods	C. Tatum	TBD		
developed in Strategy I and indicate sensory				
direction for future process development				
Type of Support	Support Division	Mgr.		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/8/93

Start Date: 1/1/93 Completion Date:

Program Milestones Process Chemistry Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy I: Identify chemical markers for subjectively				
acceptable NBL sheet/consistent burley spray				
Tactics:				
1. Fractionate organic and water soluble extracts	R. Southwick	0.40		
using appropriate chromatographic methods				
2. Identify subjective panel, develop smoking	R. Southwick	0.20		
protocol, evaluate subjective character of				
fraction or components using cigarette models				
3. Isolate and characterize individual components	R. Izac	0.20		
4. Evaluate methods such as HPLC or GC to	R. Izac	0.30		
quantify identified, desirable components or fractions				
5. Design and implement or contribute to	M. Penn	0.20		
maintenance of a comprehensive PRD information				
system				
Strategy II: Characterize the chemistry of "aging"				
in post-manufacturing cigarettes				
Tactics:				
1. Review and summarize available literature	R. Izac	0.10		
2. Assemble and train smoking panel and	R. Southwick	0.10		
develop protocol				
3. Compare CO2 evolution from "young" and	M. Penn	0.20		
"old" blended components				
4. Fractionate water and organic soluble extracts	R. Southwick	0.40		
from "young" and "old" finished product				
5. Develop chromatographic methods to	R. Izac	0.20		
monitor fractionation and quantify identified				
components responsible for aging				
6. Develop process and verify findings to acquire	R. Izac	0.10		
control/stale "flavor" from identified components				
7. Design and implement or contribute to	M. Penn	0.10		
maintenance of a comprehensive PRD info. system				

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other — Program No.: _____

Category: Smoke Research — Date Prepared: 3/8/93

Start Date: 1/1/93 — Completion Date: _____

Program Milestones Process Chemistry Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy III: Develop extraction process to acquire				
"tobacco flavor" from a tobacco source				
Tactics:				
1. Fractionate organic and water soluble extracts	R. Southwick	0.40		
Develop appropriate methods such as GC or HPLC				
to monitor fractionation scheme				
2. Identify subjective panel, develop smoking	R. Southwick	0.00		
protocol, evaluate subjective character of fractions				
or components using cigarette models				
3. Develop extraction process to acquire	R. Southwick	0.20		
"tobacco flavor" identified by subjective panel				
4. Evaluate methods such as HPLC or GC	R. Southwick	0.30		
to quantify the identified, desirable components				
or fractions				
5. Evaluate methods to scale-up process	R. Southwick	0.10		
6. Design and implement or contribute to	R. Southwick	0.10		
maintenance of a comprehensive PRD				
information system. Disseminate information				
Strategy IV: Characterize the chemistry of				
self-heating of RCB				
Tactics:				
1. Review and summarize available information	R. Izac	0.10		
2. Develop a laboratory method to model	M. Penn	0.20		
and measure self-heating of RCB				
3. Apply "extracts" to unflavored RL or filter	M. Penn	0.20		
paper and determine self-heating propensity				
4. Evaluate progress and determine direction	M. Penn	0.10		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Other Program No.:

Category: Smoke Research Date Prepared: 3/15/93

Start Date: 1/1/93 Completion Date:

Program Milestones Database Work Team	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Strategy I: Obtain data required to facilitate	P. Grantham			
aquisition of an appropriate information				
system for Product Research				
Tactics:				
1. Survey PRD and support depts. to		0.10		
determine analytical data input				
2. Discuss options and security issues		0.10		
with CAD and vendors				
3. Select system that meets PRD needs		0.05		
Strategy II: Develop criteria for analytical	P. Grantham			
and subjective information to be maintained				
in the PRD information system				
Tactics:				
1. Assess analytical and subjective input		0.10		
requirements of the users				
2. Determine the appropriateness of data				
for system input and establish criteria for		0.10		
archiving information				
3. Develop and/or adopt a consistent and connective		0.05		
sample coding system				
Strategy III: Implement the selected information	P. Grantham			
system				
Tactics:				
1. Identify information system manager				
2. Install selected system in appropriate areas				
3. Provide user training				
4. Validate system compatibility with		0.05		
instrumentation				
5. Initiate data collection and retrieval				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
Installation and training	CAD	0.70		
	CTSD			
	PED			
	Semi Works			
Installation and training	Vendor	0.10		

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1993 -1997 Five-Year Plan
Program Summary

Program: Consumer Research Technology - Domestic

Category: Address Consumer Desires (Domestic) **Included in 1992-1996 Plan:** Yes

Start Date: January 1993 **Completion Date:** December 1993

Program Description:

Domestically, we need to develop added-value features for existing and new full-margin brands to establish clear added-value superiority to discount brands, especially, and to competitors' premium brands.

Importance to PM-USA:

Successful new products are a critical element of the plan.

- Decline rate of Marlboro and other premium brands must be slowed/reversed to meet objectives.
- PM-USA premium brands must significantly outperform competitive brands.
- New products are projected to contribute over 10% of PM-USA profitability in 1996.

Program Benefits:

By becoming more adept at generating and implementing new product and promotional concepts to maintain consumer interest in all new products (with emphasis on adding value to premium brands), we will be in a better position to meet PM-USA's volume share and income objectives.

Program Leadership:

Functional Area: R&D **Department:** PD **Program Leader:** Lopez

Support Required From	1993 Man-Years	Leadership Dept. (93)
		12.11
Market Research	0.20	
Sales	0.10	
Engineering	0.5	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones	1993 1 2 3 4	1994 1 2 3 4	1995 1 2 3 4	1996 1 2 3 4	1997 1 2 3 4
Design and implement programs to study and monitor consumer issues/desires	Ongoing				
Generate, capture and evaluate new concepts	Ongoing				
Develop methods to measure and predict product benefit versus sensory cost	Ongoing				
Develop models to predict brand choice	Ongoing				
Maintain knowledge base	Ongoing				
Continuous improvement	Ongoing				

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

Program: Consumer Research Technology - Domestic **Program No.:** 920101

Category: Address Consumer Desires (Domestic) **Date Prepared:** 3/16/93

Start Date: January 1993 **Completion Date:** December 1993

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Study/Monitor Consumer Issues				
1) Smokestyles & consumer issues study	M. Jeltema	0.2		
2) Innovator identification/trend clues	M. Jeltema	0.10		
3) Asses Market Trends	M. Johnston	1.0		
4) Maximize SOM by segment	M. Johnston	1.0		
5) Monitor forces impacting sales	M. Johnston	1.0		
Generating and Evaluating New Ideas				
6) Sales force idea generation	P. Callaham	0.10		
7) New packaging study	P. Callaham	0.95		
8) Idea generation methods	P. Callaham			
9) Low Odor Low Sidestream	C. Kuesten	0.20		
Methods to Measure Benefits vs. Costs				
10) Sensory cost/marketplace purchase	M. Jeltema	0.15		
11) Cost benefit response surface	Tindall/Jeltema	0.25		
Maintain Knowledge Base				
12) Black/white and private label competitive testing	A. Manwaring	0.10		
13) Tipping color effects	M. Fleming	0.05		
14) Effect of menthol repacking	M. Fleming	0.05		
15) Strength versus tar/puff regression	B. Joyner	0.15		
16) Marlboro Control Regions	A. Smith	0.30		
Models To Predict Brand Choice				
17) Brand switching neural network	J. Blankinship	0.35		
Type of Support	**Support Division**	**Mgr.**		
Flavor production	Chem. Applications	0.15		
Computer Enhancements	CAD	1.88		
	CTSD			
	PED			
	Semi Works			
Coordinate Prototype Manufacture	Cigarette Tech	0.50		
Develop prototypes	Pack. Dev.	0.75		

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Consumer Research Technology - Domestic **Program No.:** 920101

Category: Address Consumer Desires (Domestic) Page 2 **Date Prepared:** 3/16/93

Start Date: January 1993 **Completion Date:** December 1993

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Continuous Improvement				
18) Restructure POL database	M. Radzom	0.41		
19) Convert to SAS statistical software	J. Gear	0.30		
20) Evaluate panelist behavior	M. Fleming	0.20		
21) Computerize NPP	C. Kuesten	0.20		
22) Implement POL Complete	C. Kuesten	1.30		
23) NPP vs POL Results	B. Joyner	0.20		
24) Evaluate DeltaGraph/Excel	F. Scott	0.10		
25) Develop Cross Training Program	A. Manwaring	0.15		
26) Recruit and maintain panel	F. West	0.13		
27) Update POL database	F. West	0.13		
28) Improve efficiency of POL databases	F. West	0.41		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 -1997 Five-Year Plan
Program Summary

Program: Consumer Research Technology - International

Category: Address Consumer Desires (Export) **Included in 1992-1996 Plan:** Yes

Start Date: January 1993 **Completion Date:** December 1993

Program Description:

Collect and interpret information on consumer attitudes, lifestyles, behavior, and concept/product perceptions to determine potential R&D and PMPI product programs and provide direction for existing programs.

Importance to PM-USA:

Increased export volume can offset excess manufacturing capacity that will be created by decreased USA industry sales.

Program Benefits:

- Provide assistance to PMI in meeting their business plans by transferring PM-USA technology.
- Increased export volume to offset potential excess manufacturing capacity.

Program Leadership:

Functional Area: R&D **Department:** PD **Program Leader:** Lopez

Support Required From	1993 Man-Years	Leadership Dept. (93)
		3.58

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones	1993 1 2 3 4	1994 1 2 3 4	1995 1 2 3 4	1996 1 2 3 4	1997 1 2 3 4
Design and implement programs to study and monitor consumer issues and desires	Ongoing				
Develop methods to measure and predict product benefit versus sensory costs	Ongoing				
Generate, capture and evaluate new concepts	Ongoing				

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Consumer Research Technology - International **Program No.:** 920103

Category: Address Consumer Desires (Export) **Date Prepared:** 3/16/93

Start Date: January 1993 **Completion Date:** December 1993

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Study/Monitor Consumer Issues				
1) Japan: Low smoke/low odor qualitative study	J. Jones	0.1		
2) Hong Kong: Issues and concepts study	J. Jones	0.05		
3) Consumer contact education/communication	J. Jones	0.2		
4) Identify forces that impact share in Asia markets	C. Matthews	0.4		
Generating and Evaluating New Ideas				
5) Japan: Low smoke/low odor usage study	C. Matthews	0.1		
6) Japan: Multiple concept/prototype study	J. Jones	0.1		
7) Korea: Multiple concept/prototype study	J. Jones	0.1		
8) Korea: Product parameters influencing softness	C. Matthews	0.05		
Develop Methods to Measure Product Benefits vs. Sensory Costs				
9) Consumer sensory testing - export	C. Matthews	1.0		
10) Consumer sensory testing - licensees/affiliates	J. Jones	1.0		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	
Coordinate Prototype Manufacture	Cigarette Tech	0.48

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1993 -1997 Five-Year Plan

Program Summary

Program: Primary Technology

Category: Cost/Productivity **Included in 1992-1996 Plan:** Yes

Start Date: 1/1/92 **Completion Date:** 12/94

Program Description: Develop primary processing toolbox technologies that meet the business needs for the next 20 years. The tools will provide:

1. Improved profit margins through lower leaf costs and increased yield.
2. Improved ability to efficiently process complex brand mixes and order quantities.
3. Better understanding of cigarette subjectives as a function of the process and process operating techniques.

Importance to PM-USA:

1. Improved profit margins through lower leaf cost and increased cigarette yield per pound of tobacco.
2. Improved ability to efficiently process complex brand mixes and order quantities in a single primary.
3. Ability to expand primaries in smaller increments as business needs demand.
4. Better understanding of cigarette subjectives as a function of processing conditions.

Program Benefits: 8-13% Tobacco usage reduction over plan period.

Disconnect Brands:

- Leaf cost savings through blend changes and process modifications of up to $0.44/1000
- Cigarette design and leaf blending information.

Premium Brands:

- Similar benefits

Program Leadership:

Functional Area: R&D **Department:** Proc. Dev. **Program Leader:** S. E. Clark

Support Required From	1993 Man-Years	Leadership Dept. (93)
Engineering	6.8	37.19
Operations Services	0.5	
Quality Assurance	0.3	
CEFA/PPE	0.1	
Leaf	1.1	

Capital Requirements (93) $ 6.0 **1993-1997 $** TBD **650 Timing** 2 Q 93

Program Milestones

	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BRICA Cost Reduction																				
Leaf Blend Changes																				
Steam Tunnel Recommendation																				
Steam Tunnel Implementation																				
ET and Other Recommendations																				
Cambridge Changes																				
New Primary Technologies - Defined																				
Casing and Flavoring																				
Strip Heating																				
Filling Value Enhancement																				
Trim Drying																				
Filler Blending																				

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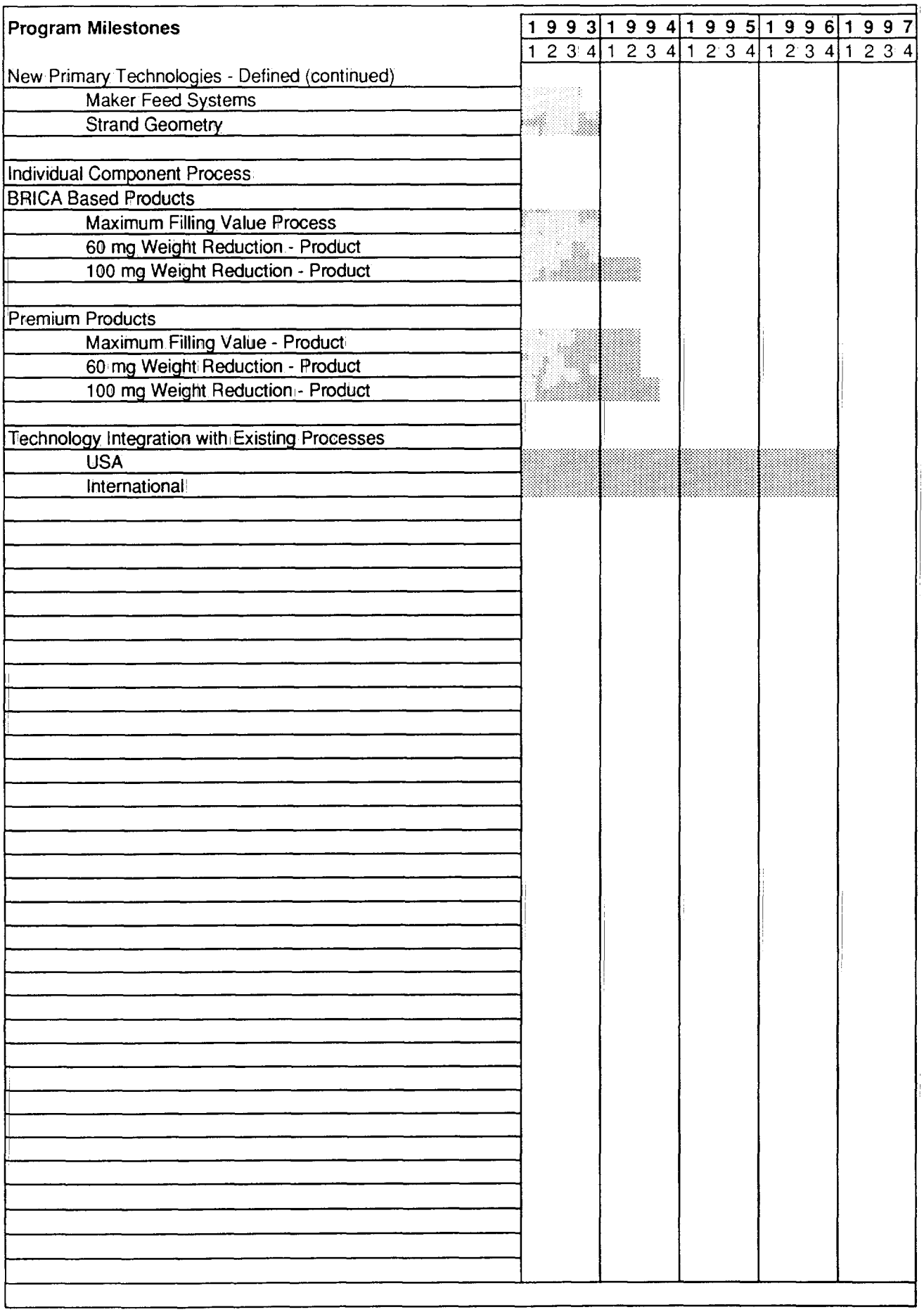

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Primary Technology **Program No.:**

Category: Cost/Productivity **Date Prepared:** 8/92

Start Date: 1/1/93 **Completion Date:** 12/94

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
BRICA Cost Reduction	Callaham/Keatts	1.85		
Leaf Blend Changes	Bell/Rockwell			
Steam Tunnel Recommendation	Mullins	.45		
Steam Tunnel Implementation				
ET and Other Recommendations	Lisbon	.2		
Cambridge Changes	Toerne	.2		
New Prin	Callaham	.2		
Casing and Flavor	Pitts/Sherron	1.0		
Strip Heating	Nepomuceno	.75		
Filling Value Enhancement	Crump	1.0		
Trim Drying and Filler Blending	Toerne/Mullins	1.0		
Strand Geometry	Lisbon/Engr.	.5		
Maker Feed System	Engineering			
Subjective Support	Hayes	1.5		
Statistical Support	Gear	.25		
Physical Model and Research	Chen/Ganeriwala	.50		
Individual Component Process				
BRICA Pi				
Process Definition	Callaham	.2		
60 mg Weight Reduction - Product	Bell/Keatts	.9		
100 mg Weight Reduction - Product	Rockwell	.8		
Premium				
Process Definition	Callaham	.2		
60 mg Weight Reduction - Product	Bell/Keatts	.9		
100 mg Weight Reduction - Product	Rockwell	.8		
Subjective Support	Hayes	1.5		
Statistical Support	Gear	.25		
Low Weight Cigarette Research	Grubbs	.5		
Process Chemistry - Research	Grubbs	.5		
Technology Integration/Analysis	Wood	1.3		
Type of Support	**Support Division**	**Mgr.**		
Analytical Testing/Blend Composition	ARD	6.12		
Data and Testing System	CAD	.70		
Physical Testing	CTSD	3.00		
Subjective Consult and POL Testing	PED	1.00		
Filler and Cigarette Production	SemiWorks	8.37		
Blend Change and ET Blend	Leaf	0.75		
Total		**37.19**		

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1993 -1997 Five-Year Plan

Program Summary

Program: Cast Leaf

Category: Productivity/Flexibility **Included in 1992-1996 Plan:** _____

Start Date: 1st QTR 1991 **Completion Date:** 4th QTR 1994

Program Description: Develop a Cast Leaf product that will proivde flexibility in meeting world-wide utilization needs for individual tobacco types.

Importance to PM-USA: Develop Reconstituted Cast Leaf products that provide flexibility in meeting capacity needs for individual sheet types.
Support R&D programs requiring non-standard sheet.

Program Benefits: Provides potential to reduce green leaf purchases by incorporating Cast Leaf in PME's blends to a level which maintains total utilization of byproducts. Provides cast sheet with improved burn rate, and lower tar delivery compared to RCB.

Program Leadership:
Functional Area: R&D **Department:** R&D **Program Leader:** G. Gellatly

Support Required From	1993 Man-Years	Leadership Dept. (93)
PM USA: Processing Plants	2.0	20.7
Engineering	2.0	
Leaf Dept.	0.2	

Capital Requirements (93) $ _____ **1993-1997** $ _____ **650 Timing** _____

Program Milestones	1993 1 2 3 4	1994 1 2 3 4	1995 1 2 3 4	1996 1 2 3 4	1997 1 2 3 4
Develop Cast Leaf Process					
Evaluate Cast Leaf Products					
Design Low Capital Cost Plant					

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Cast Leaf **Program No.:** _____

Category: Productivity/Flexibility **Date Prepared:** _____

Start Date: 1st QTR 1991 **Completion Date:** 4th QTR 1993

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Develop Cast Leaf Process	G. Gellatly	11.0 RTD (4R3)		
Conclude Lab Scale Evaluation of Alt Binders	G. Keritsis			
Develop Steam Pressure Pectin Release	J. Baggett			
Optimize Drying Rate	P. Chen	0.3 PR (3R4)		
Provide Support for Process Dev. of Alt. Binders	G. Chan	0.2 CR (3R3)		
Evaluate Cast Leaf Products	G. Gellatly			
Optimize Physical Characteristics	P. Lieberman			
Cigarette Derlivery Studies	W. Nichols			
Define Subjective Target	G. Gellatly			
Develop Flavor Sytstems	J. Swain	0.4 FT (5R4)		
	J. Pflueger			
Design Low Capital Cost Plant				
Develop Business Analysis	E. Correa	0.4 TA (1R1)		
Develop Low Capital Cost Design	L. Lipscomb	2.0 DE (4R2)		

Type of Support	Support Division	Mgr.
Analyical Support	ARD	2.0
Computer Support	CAD	0.1
CI Analysis	CTSD	0.7
Product Specification	PED	0.2
Cigarette Making	Semi Works	2.1
Blend definition	Cig Tech	0.1

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1993 -1997 Five-Year Plan

Program Summary

Program: NET

Category: Capacity Flexibility | Included in 1992-1996 Plan: Yes

Start Date: Ongoing | Completion Date: December, 1995

Program Description: The NET program consists of five major areas:

1. Product support to Leaf for NET inclusion in full margin brands.
2. Develop design criteria for conversion of DIET facilities to the NET process.
3. Support process implementations of NET into Bermuda Hundred and BOZ.
4. Support the New Primary Technology project to reach 100 mg wt. reduction.
5. Develop a Short Cycle Impregnation process for use in small scale expansion systems for PM International.

Importance to PM-USA: NET will allow for higher inclusion levels of expanded tobacco in full margin brands and new products. The development of a small scale expansion system will support PM International by: allowing for lower delivery products to meet market demands and/or government requirements, maintaining technological advantage as a business development tool similar to DIET, and supporting the corporate trend toward standardization of our brand mix.

Program Benefits: NET will provide a higher yield expansion process. It will also provide a more tobacco-like expanded material which will allow for higher inclusion levels and reduced cigarette weight. The SCI program will allow on the spot processing for small markets where it is not economically advantageous to ship lightweight DIET long distances. It will possibly extend royalty payments to the corporation for another 17 years.

Program Leadership: B. Fischer, S. Clark, B. Riggan, S. Roberts, J. Williams

Functional Area: Process Development | Department: R&D | Program Leader: B. Fischer

Support Required From	1993 Man-Years	Leadership Dept. (93)	
Leaf	1.75	Proc Dev	14.85
PM International	2.0		
PM Engineering Dept.	0.08		

3/5/93 Rev. 1

Capital Requirements (93): $3.6M | 1993-1997: $3.6M | 650 Timing: 4/93

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NET Product Support to Leaf																				
Develop design criteria for conversion of DIET facilities to the NET process.																				
Support NET process implementation in Bermuda Hundred and BOZ.																				
Support the New Primary Technology program.																				
Develop, design and build a Short Cycle Impreg. plant.																				

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: NET Program No.: _____

Category: Capacity Flexibility Date Prepared: 3/5/93 Rev. 1

Start Date: Ongoing Completion Date: December , 1995

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
I. NET Product Support to Leaf	Fischer/Moogalian	2.35		
D-Pilot Plant Support	Lum/Atkinson	4.00		
Sieve analysis	Lum/Atkinson	0.50		
II. Develop Design Criteria for Conversion of	Fischer/Dobbs	0.05		
DIET facilities to the NET process.				
III. Implement NET into Bermuda Hundred and	Dobbs/Winterson	0.94		
BOZ.				
IV. Support the New Primary Technology project.	Wood/Dobbs	0.18		
V. Develop a Short Cycle Impregnation process				
for PM International application.				
A) Develop a short cycle impregnation and CO2	Dobbs/Prasad	0.23		
supply / recovery processes.				
B) Develop a dynamic process computer model	Dobbs/Leister	0.60		
for impregnation and CO2 recovery system.				
C) Design a new impregnator for SCI plant.	Cho	0.12		
D) Design tobacco handling system for SCI plant	Cho	0.10		
E) Evaluate alternative expansion and	Winterson	1.42		
reordering processes for a small exp. plant.				
F) Develop P&ID for the SCI plant.	Prasad/Leister	0.31		
G) Develop a complete process model for	Leister/Dobbs	0.15		
the SCI expansion plant.				
H) Develop modulized equip. arrangement.	Cho	0.50		
I) Prepare a detail design package and the	Cho/Leister	1.26		
plant operation/maintenance manuals.				
J) Purchase equipment and construct a	Cho/Leister	1.14		
prototype SCI expansion plant.				
K) Support SCI plant design and construction.	Kumar/Cho	1.00		
Type of Support	Support Division	Mgr.		
Chemical Analysis	ARD	2.3		
Data Analysis	CAD	0.1		
Physical Analysis and Cigarette Information	CTSD	3.0		
Process Modeling Support	Physical Research	0.5		
Tobacco Preparation and Cigarette Making	Semi Works	7.58		
Flavor and humectant evaluation	Flavor Tech.	0.2		
Cigarette construction and specification	Cig. Tech	0.2		

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1993 -1997 Five-Year Plan

Program Summary

Program: TOMORROW

Category: PRODUCT DEVELOPMENT **Included in 1992-1996 Plan:** _____

Start Date: 1/1/93 **Completion Date:** _____

Program Description: The goals of the Tomorrow Project are to:

1. Develop laboratory tests which measure the ignition propensities of cigarettes in a reliable and reproducible manner, and which are predictive of real-world situations.
2. Determine the effects of cigarette constructions on the outcomes of these tests.
3. Determine the practicability of producing cigarettes with lowered ignition propensities with respect to these tests.

Importance to PM-USA: The Fire Safe Cigarette Act of 1990 directs the Consumer Products Safety Commission to assess the practacability of setting ignition-propensity standards for cigarettes. CPSC is to submit their final report to the Congress by August 10, 1993.

Program Benefits: Meet potential government regulations reguarding cigarette fire safety.

Program Leadership:

Functional Area R&D **Department:** Tomorrow **Program Leader:** R.W. Dwyer

Support Required From	1993 Man-Years	Leadership Dept. (93)
Leaf Department	2.0	9.0

Capital Requirements (93) $_____ **1993-1997** $_____ **650 Timing** _____

Program Milestones	1993				1994				1995				1996				1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
see next page																				

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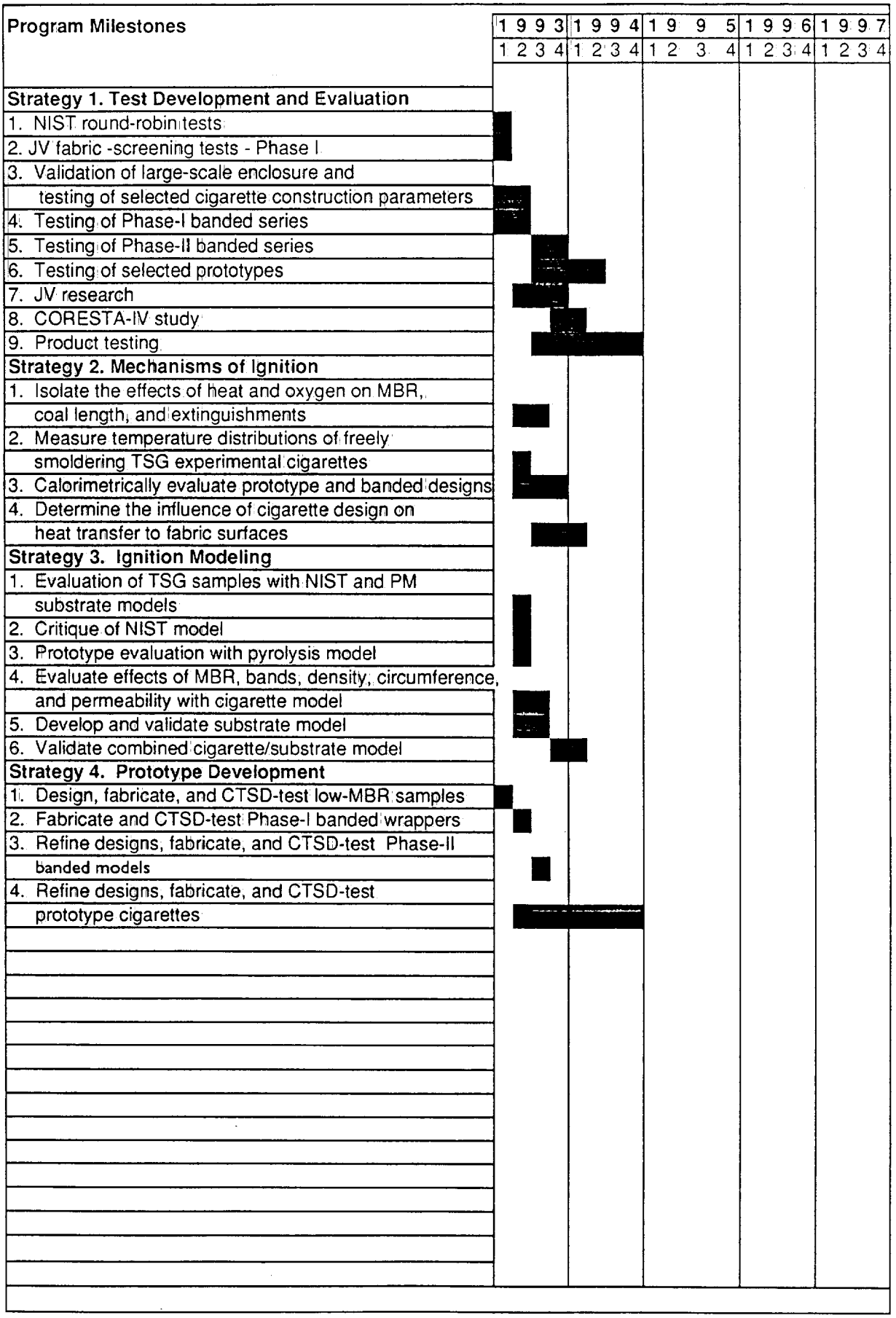
Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000


Program Milestones
1993
1994
1995
1996
1997
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
Strategy 1. Test Development and Evaluation
1. NIST round-robin tests
2. JV fabric -screening tests - Phase I
3. Validation of large-scale enclosure and testing of selected cigarette construction parameters
4. Testing of Phase-I banded series
5. Testing of Phase-II banded series
6. Testing of selected prototypes
7. JV research
8. CORESTA-IV study
9. Product testing
Strategy 2. Mechanisms of Ignition
1. Isolate the effects of heat and oxygen on MBR, coal length, and extinguishments
2. Measure temperature distributions of freely smoldering TSG experimental cigarettes
3. Calorimetrically evaluate prototype and banded designs
4. Determine the influence of cigarette design on heat transfer to fabric surfaces
Strategy 3. Ignition Modeling
1. Evaluation of TSG samples with NIST and PM substrate models
2. Critique of NIST model
3. Prototype evaluation with pyrolysis model
4. Evaluate effects of MBR, bands, density, circumference, and permeability with cigarette model
5. Develop and validate substrate model
6. Validate combined cigarette/substrate model
Strategy 4. Prototype Development
1. Design, fabricate, and CTSD-test low-MBR samples
2. Fabricate and CTSD-test Phase-I banded wrappers
3. Refine designs, fabricate, and CTSD-test Phase-II banded models
4. Refine designs, fabricate, and CTSD-test prototype cigarettes

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Source: https://www.industrydocuments.ucsf.edu/docs/kmvl0000

1993 R&D OPERATIONAL PLAN

Program Summary

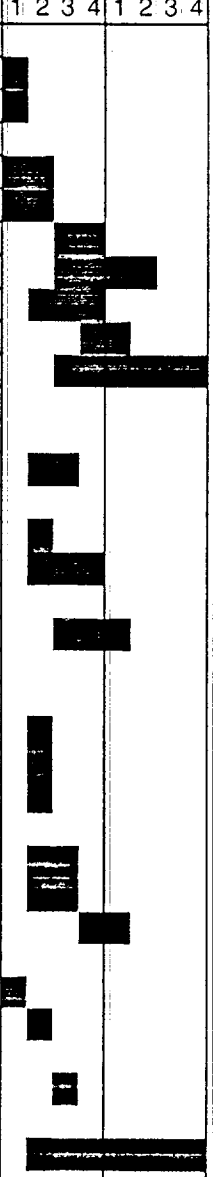
Program: TOMORROW **Program No.:**

Category: PRODUCT DEVELOPMENT **Date Prepared:** March 11,1993

Start Date: 1/1/93 **Completion Date:**

Program Milestones	Responsible Person	Resource Allocation
Strategy 1. Test Development and Evaluation	R. W. Dwyer	0.38/PR
1. NIST round-robin tests		0.07/PR
2. JV fabric -screening tests - Phase I		0.08/PR
3. Validation of large-scale enclosure and test-		
ing of selected cigarette construction parameters		0.20/PR
4. Testing of Phase-I banded series		0.12/PR
5. Testing of Phase-II banded series		0.20/PR
6. Testing of selected prototypes		0.64/PR
7. JV research		0.30/PR
8. CORESTA-IV study		0.15/PR
9. Product testing		1.24/PR
Strategy 2. Mechanisms of Ignition	R. W. Dwyer	0.25/PR
1. Isolate the effects of heat and oxygen on MBR,		
coal length, and extinguishments		1.09/PR
2. Measure temperature distributions of freely		
smoldering TSG experimental cigarettes		0.27/PR
3. Thermal evaluation of novel and banded designs		0.55/PR
4. Determine the influence of cigarette design on		
heat transfer to fabric surfaces		1.09/PR
Strategy 3. Ignition Modeling	R. W. Dwyer	0.12/PR
1. Evaluation of TSG samples with NIST and PM		
substrate models		0.35/PR
2. Critique of NIST model		0.12/PR
3. Prototype evaluation with pyrolysis model		0.24/PR
4. Evaluate effects of MBR, bands, density, circum-		
ference, and permeability with cigarette model		0.24/PR
5. Develop and validate substrate model		0.47/PR
6. Validate combined cigarette/substrate model		0.59/PR
Strategy 4. Prototype Development	R. W. Dwyer	0.25/PR
1. Design, fabricate, and CTSD-test MBR samples		0.15/PD
2. Fabricate and CTSD-test Phase-II banded wraps		0.20/PD
3. Refine designs, fabricate, and CTSD-test		
Phase-II banded models		0.25/PD
4. Refine designs, fabricate, and CTSD-test		
prototype cigarettes		0.40/PD

Type of Support	Support Division	Resources
	ARD	0.5/
	CAD	
	CTSD	1.0/
	PED	
	Semi Works	1.0/
	Leaf Dept.	2.0/
	Product Dev.	1.0/



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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support **Program No.:** _____

Category: Environmental Support **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Phosphine Abatement				
Participate with Engineering in evaluation of	C. Howe	0.05		
phosphine monitors				
Evaluate liquid adsorbers	C. Howe\K.Podraza	0.35/0.10		
Investigate aqueous oxidant systems				
Identify "best" system for reactor designg				
Collaborate with Eng. on system design				
Participate with Eng. in the Pilot testing				
of the "best" system				
Evaluate alternate solid adsorbers	C. Howe/K.Podraza	0.30/0.10		
Investigate zeolite supported systems				
Invest. alternate carbon supported systems				
Identify "best " system for reactor deisgn				
Collaborate with Eng. for system design				
Participate with Engineering in the Pilot				
testing of the "best" system				
Evaluate regeneration of spent silver on carbon	C.Howe/K.Podraza	0.05/0.05		
Investigate recycle efficiency				
Investigate alternative methods for silver				
reactivation				
Evaluate properties of commercial silver on	C.Howe/J.Paine/	0.05/0.05		
carbon materials	K. Podraza	0.05		
Work with Engineering to develop a silver on	W. Edwards	0.05		
carbon system	K. Podraza	0.05		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operatins Support **Program No.:** _____

Category: Environmental Support **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Coordinate waste analysis for hazard classification	K. Podraza	0.20		
and regulatory compliance				
Synthesize speciality catalysts	J. Paine	0.20		
Develop a commercial supply of catalysts and/or	W. Edwards	0.20		
adsorbents				
Estab. a technology base of com. sources				
Obtain necessary legal agreements				
Estab. joint efforts with selected companies				
Coordinate joint research efforts				
Investigate new technologies applicable to	C.Howe/K.Podraza	0.05/0.05		
phosphine abatement				
Environmental Support	C.Howe/J.Paine	0.05/0.05		
	K. Podraza	0.10		
Support other necessary environ. research in:				
Nicotine destruction methods				
TKN analysis methods				
Methods to improve the quality of Park 500				
potassium nitrate				
Adsorption technology				
Hazard classification for waste materials				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Environmental Analysis **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Provide Analytical support and data review for stack	D. Watson	0.65		
gas analysis				
(Contacts: D. Merrill, S. Clark)				
Perform analysis in support of total nitrogen, nicotine,	B. Ryan	0.25		
and nitrate as needed				
(Contact: K. Podraza)				
Conduct TCLP analysis and provide CPA analysis	D. Davis	0.25		
as requested				
(Contact: K. Podraza)				
Participate in special studies including methods	S.Yang	0.45		
development related to anlaysis of environmental				
samples				
Chemical Analysis Group		0.90		
Analytical Investigations		0.70		
Analytical Research	TOTAL:	1.60		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Leaf Materials **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Export sheet certification analysis	B. Ryan	0.25		
(Contact: A. Luxmore)				
Prepare tobacco materials for use as standards	K. Bennett	0.05		
for XRF methods at TQAF				
(Contact: R. Grizzel)				
Kabat-International Stemmery qualification	B. Ryan	0.50		
(Contact: D. Faustini)				
Insect growth regulator studies-analytical support	B. Ryan	0.75		
(Contact: D. Faustini)				
Cooperative Leaf Studies and Agronomy support	M. Mangrum	0.20		
(Contact: R. Bass)				
Perform analysis to supplement TQAF samples	C. Ament	0.10		
from Leaf Department				
(Contact: R. Grizzel)				
Chemical Analysis Group	TOTAL:	1.85		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Leaf Materials **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Evaluation and implementation of HPLC MH30	D. Davis	0.25		
methodology				
(Contact: J. Ware)				
Provide CPA analyses using FTR, R&D, USDA,	D. Davis	0.60		
methods				
(Contact: J. Ware)				
Support QA routine CPA analysis	D. Davis	0.15		
(Contact: Various)				
Implement FTR CPA procedures	D. Davis	0.50		
(Contact: Various)				
Conduct specialized analysis of insect growth	S. Yang	0.10		
regulators				
Evaluate possible at line method for insect growth	E. Thomas	0.20		
regulator				
(Contact: D. Leyden)				
Determine applicability of IC technology to	G. Baker	0.10		
additional Leaf parameters and special analysis				
needs				
(Contact: D. Leyden)				
Analytical Investigations Team	TOTAL:	1.90		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Direct & Indirect Materials **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Method development and documentation for Flavor	G. Vilcins	2.20		
Specifications				
(Contact: F. Daylor)				
Analytical characterization of adhesives	G. Vilcins	0.70		
(Contact: P. Gauvin)				
Direct materials evaluations using established	G. Vilcins	0.20		
procedures				
(Contact: G. Patskan)				
Pyrolysis and spectroscopy inevstigations of	G. Vilcins	0.45		
direct materials				
(Contact: G. Patskan)				
Application of XRF and related technology to	K. Bennett	0.15		
Direct Materials				
(Contact: G. Patskan)				
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Direct and Indirect Materials **Program No.:** _____

Category: _____ **Date Prepared:** Ongoing

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Identification of material components by FTIR	G. Vilcins	0.70		
methods				
(Contact: T. Weston, L. McCray)				
Application of XRF methods to indirect materials	K. Bennett	0.05		
Development and documentation of Raman	G. Vilcins	0.60		
spectroscopy methods				
(Contact: R. Ferguson)				
Indirect material pyrolysis gc/ms	J. Naworal	0.15		
(Contact: T. Weston, L. McCray)				
Determination of material acceptability under	G. Vilcins	0.20		
established guidelines				
(Contact: G. Patskan)				
Data Retention	T. Larus	0.20		
(Contact: F. Daylor)				
Chemical Analysis Section	TOTAL:	5.60		
Type of Support	**Support Division**	**Mgr.**		
	ARD			
	CAD			
	CTSD			
	PED			
	Semi Works			

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Direct and Indirect Materials **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Characterize and evaluate materials when trace	N. Jensen	0.40		
component identification is required				
(Contact: R. Ferguson, R. Carchman)				

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Sup./Indirect and Dir. Materials: Adhesives **Program No.:** _____

Category: Monitors for Ingredients added to tob./tob. materials **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Continue to support the Cabarrus Adhesive FTIR	M. Parrish*	0.05		
System and assist in training personnel and				
incorporating additional training sets in the				
system as new adhesive lots become available				
(Contact: J. Crowe ,L. Craighill)				
Analytical Methods Applications	TOTAL:	0.05		

Type of Support	Support Division	Mgr.
	ARD	
Technical Consultation	CAD	0.02
	CTSD	
	PED	
	Semi Works	
Technical Consultation	PRD	0.05
TOTAL: DIrect ARD Support		0.12

*Anaytical Methods Applications Team Contact Person

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support\Indirect and Direct Materials **Program No.:** _____

Category: Technical Support/Packaging Materials Inspection **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Complete development of and transfer a turnkey	C. Harward*	0.10		
two color QA incoming materials inspection system				
in collaboration with PS&T				
(Contact: J. Busic)				
Analytical Methods Applications	TOTAL:	0.10		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

*Analytical Methods Applications Team Contact Person

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Process Monitoring **Program No.:** _____

Category: Technologies for Moisture Measurement **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Collect information/identify needs for Inventory	M. Parrish*	0.45		
Moisture Control				
Investigate potential technology and initiate				
development of methodology				
(Contact: B. Fitzpatrick)				
Analytical Methods Applications	TOTAL:	0.45		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	
TOTAL: Direct ARD Support		0.45

*Analytical Methods Applications Team Contact Person

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support\Process Monitoring **Program No.:** _____

Category: Technologies for Moisture Measurement **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Assess reference methods for calibration of	Kanipe/Hicks-White	1.85		
on-line moisture monitors	Hicks-White	0.10		
Existing Instruments				
New Instruements				
(Contact: T. Phan)				
Evaluate bench-top systems based on spectrosco-	Hicks-White*	0.50		
pic techniques for moisture in cigarette filler				
Trebor (NIT)				
Microlab 91 (NIR)				
(Contact: TBD)				
Improve GC water procedure including	Hicks-White*	0.20		
comprehensive extraction comparison studies				
for various tobacco /tobacco materials and				
related precision studies				
(If required) Compare GC water procedure vs. KFW	Hicks-White*	0.25		
(Contact: R. Ferguson)				
Analytical Methods Applications	TOTAL:	2.90		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	
Technical Advisor for all aspects of AMA Team	D. Leyden	0.30

*Analytical Methods Applications Team Contact Person

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Process Monitoring **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** _____

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Perform analysis for correlation of moisture and OV	M. Mangrum	0.15		
(Contact: M. Parrish, G. Hicks-White)				
Support evaluation of specialized monitoring	J. Pierotti	0.75		
procedures				
(Contact: F. Hsu)				
Chemical Analysis Group	TOTAL:	0.90		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Finished Product **Program No.:** _____

Category: _____ **Date Prepared:** _____

Start Date: _____ **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Chemical analysis and spectroscopy of	M. Griff	0.30		
unauthorized and competititve products and				
product components				
(Contact: D. Miser)				
Customer complaints or foreign matter - filler and	M. Griff	0.50		
component analysis				
(Contact: Various)				
Chemical Analysis Group	TOTAL:	0.80		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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1993 R&D OPERATIONAL PLAN

Program Summary

Program: Operations Support/Finished Product **Program No.:**

Category: **Date Prepared:**

Start Date: **Completion Date:** Ongoing

Program Milestones	Responsible Person	Resource Allocation	1993 1 2 3 4	1994 1 2 3 4
Investigate and coordinate analysis and reporting	S. Yang	0.55		
for customer complaints				
(Contact: Various)				
Investigate customer complaints using microscopy	V. Baliga	0.65		
and spectroscopy tools of analytical facilities				
(Contact: S. Yang)				
Coordinate all R&D analyses on unauthorized	D. Miser	0.10		
products and materials				
(Contact: G. Morgan)				
Analyze and compile data on international product	D. Miser	0.40		
components, on competitor poducts, on vendor				
materials and on unauthorized product				
(Contact: G. Morgan)				
Analytical Facilities and				
Analytical Investigations	TOTAL:	1.70		

Type of Support	Support Division	Mgr.
	ARD	
	CAD	
	CTSD	
	PED	
	Semi Works	

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